

NAGW-2821  
Report on the American Geophysical Union

## 1990 Western Pacific Geophysics Meeting

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The 1990 Western Pacific Geophysics Meeting was held in Kanazawa, Japan from August 21-15. This was the first meeting of a new series of meetings for the American Geophysical Union and it proved to be very successful in terms of the scientific program and attendance which was at 1,069 participants. The intent of this meeting was an effort on the part of the American Geophysical Union (AGU) and several Japanese geophysical societies to gather individual Earth and space scientists at a major scientific meeting to focus on geophysical problems being studied in the western Pacific rim. The meeting was organized along the lines of a typical AGU annual meeting with a some invited talks, many contributed talks, poster sessions, and with emphasis on presentations and informal discussions. The program committee consisted of scientists from both the U.S. and Japan.

This meeting provided ample opportunities for U.S. and Japanese scientists to get to know each other and their works on a one-to-one basis. It was also a valuable opportunity for students studying geophysics to get together and interact with each other and with scientists from both the U.S. and Japan.

There were 939 abstracts submitted to the conference and a total of 102 sessions designed as a result of the abstracts received. Some of the special focussed topics are described below.

- Space Geodetic and Observatory Measurements for Earthquake and Tectonic Studies - Papers on the applications of high-accuracy space geodetic (GPS, VLBI, SLR) and observatory (strainmeters, tiltmeters) techniques to earthquake and tectonics studies were presented. Likewise, talks on continuous measurement of strain were also given.
- Gravity, Sea Level and Vertical Motion - A major challenge to Earth scientists in the 1990s will be determining the rate, if any, of global warming caused by increasing carbon dioxide from the combustion of fossil fuels and deforestation. Several papers were presented on information related to gravity and vertical motion sea level changes.
- Variations in Earth Rotation and Earth Dynamics - Variations in the Earth orientation are caused by deformation of the solid Earth, and by exchanges of angular momentum between the solid and fluid part of the Earth. These variations are in the rotation rate of the Earth about its spin axis, polar motion, nutations and precessions, Earth tides, the Earth's mass distribution, and the Earth's geopotential. Talks were given that infer dynamic properties of Earth from measured variations in Earth orientation.
- Sedimentary Magnetism - This session focussed on magnetization processes in sediments and sedimentary rocks, with special reference to diagenetic alteration of magnetic minerals in oxidizing and reducing conditions, and the implication of diagenetic alteration for the utilization of the rock magnetic rock as a means of stratigraphy correlation. Sedimentary rocks and sediment records of geomagnetic field behavior, including secular variation, transition records, events and excursions, polarity reversal stratigraphy, and the correlation of polarity records with biozonations and the oceanic magnetic anomaly record.

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- Global Processes and Precipitation - This session was devoted to results of measurement techniques with potential for global scale measurements of hydrological variables. Present and future space-borne measurements of precipitation, soil moisture, water vapor, snow cover and glacier volume were discussed as well as measurements that can be used to model oceanic evaporation, terrestrial evapotranspiration, runoff and the advection of water vapor.
- Subsurface Contaminant Transport - The first part of this session focussed on theory and interpretation of field experiments and provided a forum in which both experimental and theoretical aspects of issues related to contaminant transport was debated. Questions related to scaling and the possible fractal nature of hydrological parameters, affecting transport was raised. The second part focussed on new measurement techniques which was motivated by the need to enhance field measurement capabilities between Earth scientists and those in engineering fields to move decisively toward solutions to the subsurface contamination problems that face many of the nations that participated in the meeting.
- U.S. Western Pacific Rim Initiatives in Hydrology - This was a forum for individuals who attended the meeting to explore the possibility of developing joint initiatives between the U.S., Japan, and other western Pacific nations. All branches of hydrology were open for discussion in the areas of research, education and exchange programs, as well as funding opportunities.
- Role of Marginal Seas in the Dynamics and Water Mass Characteristics of the Western North Pacific - talks were given on the branching of the Kuroshio and its penetration into coastal regions, incorporation of coastal water into the offshore circulation, lateral mixing across the coastal seas, open ocean boundary, water mass modification in the coastal seas and other topics relevant to the physical makeup of the broad western boundary region.
- Shelf and Coastal Circulation - The session emphasized the role of shelf and coastal circulation in determining the material flux from land to open sea. Talks on mechanisms of material transport, dynamics of wind-driven, buoyancy-driven and tide induced residual circulation, interactions between river rain and coastal, coastal and shelf open-sea waters, fronts, long-term variability, and measurement techniques applied to coastal problems were presented.
- Earthquake Prediction and Hazard Assessment - The focus was on the deterministic and probabilistic approaches to prediction and hazard assessment. Advances in theory and results of observations with emphasis on case histories and on prediction and forecasting.
- Seismic Wave Propagation in Realistic Media - This session explored theory and observations of seismic sources and waves in anisotropic and lossy media, with scattering and lateral heterogeneity, and forward and inverse problems.
- Dynamics and Structure of Plate Boundaries and of the Earth's Deep Interior - These sessions emphasized theory observations processes and structures with applications to regional tectonics and geodynamics models, and results from seismological, geodetic, and core-mantle boundary.
- Physics of Earthquake Processes and Recent Earthquakes - The session focussed on the theory and observations of earthquake nucleation and fault rupture, seismotectonics, and modeling of seismic sources. New results from recent earthquakes and laboratory studies relevant to seismogenesis were presented.

- Computer Experiments in Geospace Plasmas - This session focussed on recent advances in the use of numerical simulation in space plasmas. Talks on the application of such methods to active experiments, waves and instabilities, boundary layer phenomena, and global modeling in magnetospheric, heliospheric, and ionospheric plasmas were given.
- Ground, Balloon, and Rocket Observations of the Aurora - The emphasis of the session was to consolidate all aspects of auroral phenomena that are observed on the ground and on-board balloon and rocket in the regions from the equator to the polar cap. The session also focussed on the results from conjugate observation, multi-ground observation and simultaneous observation with satellites.
- Solar Wind Interaction With Venus - Talks in this session covered the understanding of the plasma and electromagnetic environment of Venus. Subjects included upstream waves and the bow shock, ion pickup, the physics of the ionopause, and ionosphere and VLF waves and lightning.
- Cusp and Boundary Layer ULF Waves - the intent of this session was to assess the spectrum of cusp and boundary layer ULF waves in order to understand their role in the transfer of energy and momentum to the magnetosphere to the magnetosphere and the extent to which they are observable within the magnetosphere. Contributions included wave theory and satellite and ground observations.
- Tectonics, Magmatism and Hydrothermal Processes in Active Backarc Regions - Rifting, igneous activity, and hydrothermal circulation are interlinked dynamic processes operating in active arc-backarc systems. The intent of this session was to increase the understanding of the dynamics of convergent plate margins through exchange of data and ideas on the mechanisms and temporal and spatial relationships of these processes at various arc-backarc systems. Contributions on those dealing with tectonic evolution of backarc basins, petrology in relation to rift tectonics, paleomagnetism applied to backarc opening, hydrothermal activity, and mineralization in various arc-backarc systems were given.
- Chemical Geodynamics and Evolution of the Earth and Planets - The main topics addressed included accretion and thermal evolution of the Earth and planets; Archean tectonics and evolution of the continental crust; geochemical evolution of the Earth's mantle, and global geodynamics.
- Modeling of Volcanoes and Volcanisms - During this two-day session recent developments in volcanology and related research fields was featured with special emphasis on models for particular volcanoes and specific volcanic events, chemical and physical properties of magmatic volatiles, experimental and theoretical studies on the genesis and transport of magmas, and mechanisms for volcanic eruption.

This meetings was considered to be most successful and did set the tone for holding the 1992 Western Pacific Geophysics Meeting which was held in Hong. The only publication produced as a result of this meeting was the abstracts which was printed in Eos. A copy of the abstract volume is attached.

Western Pacific Geophysics Meeting

國際地球物理金沢會議

# 1990 WPGM PROGRAM

August 21-25

Kanazawa, Japan

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## Program Committee for the Meeting

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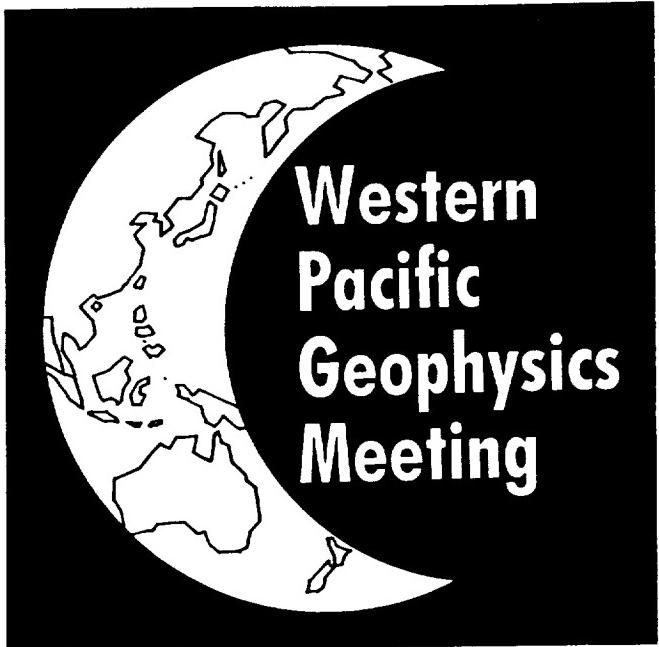
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August 21-25, 1990  
Kanazawa, Japan

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## The Sponsors of the first Western Pacific Geophysics Meeting

The first Western Pacific Geophysics Meeting is jointly sponsored by the American Geophysical Union and the following major Japanese geophysical sci-

tific societies. (Each society's representative on the organizing committee is listed immediately after the name of the society.)

- **Geochemical Society of Japan:** Sadao Matsuo, University of Electro-Communications
- **Geodetic Society of Japan:** Minoru Tanaka, Geographical Survey Institute
- **Geological Society of Japan:** Asahiko Taira, Ocean Research Institute, University of Tokyo
- **Meteorological Society of Japan:** Tomio Asai, Ocean Research Institute, University of Tokyo
- **Oceanographic Society of Japan:** Yutaka Nagata, Department of Geophysics, University of Tokyo
- **Seismological Society of Japan:** Masataka Ando, Disaster Prevention Research Institute, Kyoto University
- **Society of Geomagnetism and Earth, Planetary and Space Sciences:** Iwane Kimura, cochairman representing the Japanese societies, Department of Electrical Engineering, Kyoto University
- **Volcanological Society of Japan:** Shigeo Aramaki, Earthquake Research Institute, University of Tokyo
- **Japanese Hydrological Committee for WPGM:** Kuniyoshi Takeuchi, Faculty of Engineering, Yamanashi University

- **American Geophysical Union:** Christopher Harrison, cochairman representing AGU, University of Miami
- Juan Roederer, AGU International Secretary, University of Alaska
- A. F. Spilhaus, Jr., AGU Executive Director

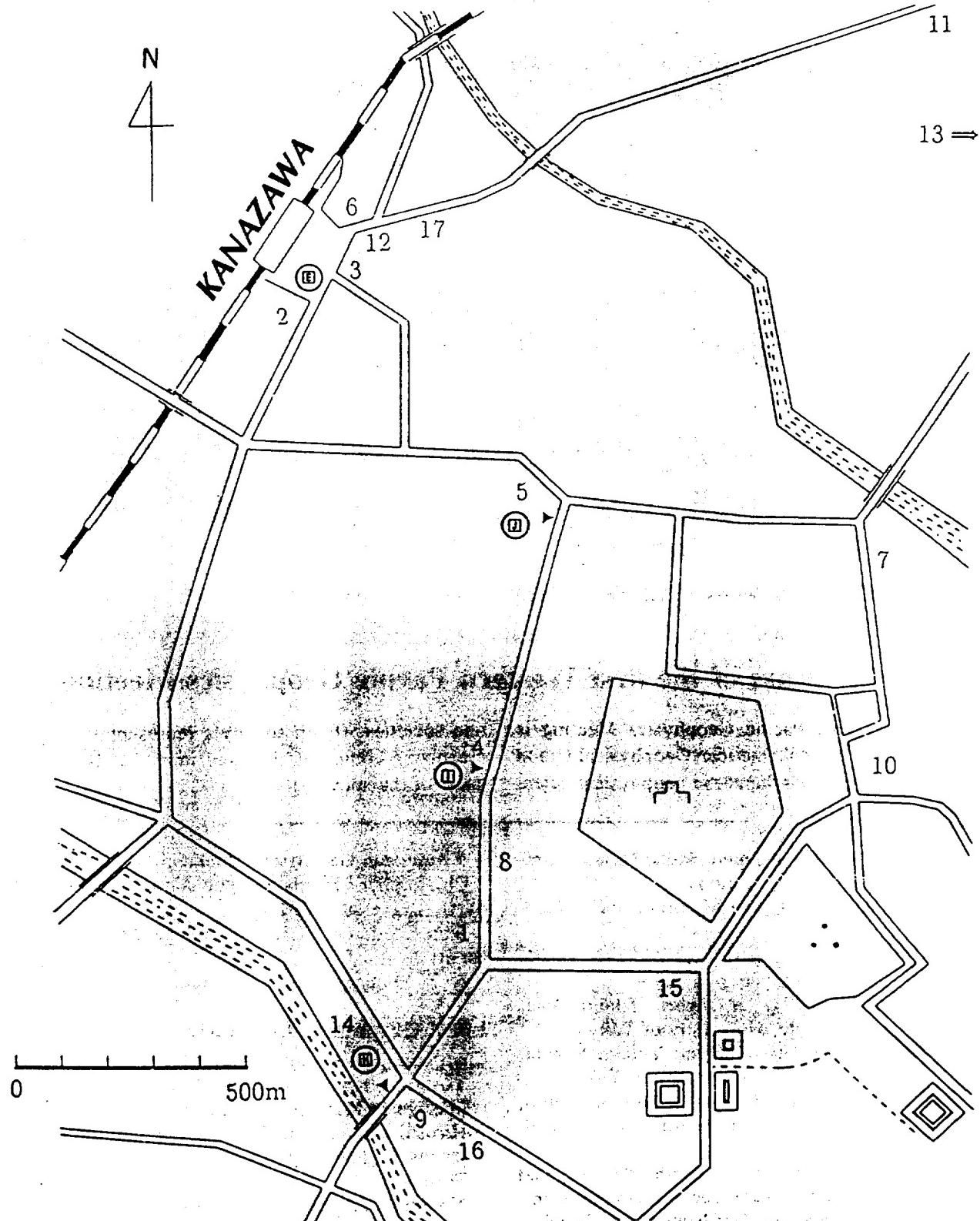
### Local Organizing Committee

Chairman: Iwane Kimura, Kyoto University  
Yoshiteru Kono, Kanazawa University  
Masayoshi Mambo, Kanazawa University  
Hiroshi Matsumoto, Kyoto University  
Isamu Nagano, Kanazawa University  
Toru Sato, Kyoto University  
Nobutada Takase, Kanazawa University

### Financial Support

- **The Commemorative Association for the Japan World Exposition (Japan)**
  - **Ishikawa Prefecture and Kanazawa City (Japan)**
  - **National Aeronautics and Space Administration (United States)**

# KANAZAWA AREA



Kosei Nenkin Kaikan  
 Shakai Fukushi Kaikan  
 Shakai-Kyoiku Center  
 Kanko Kaikan  
 Kanazawa Station  
 Kanazawa Castle & Park  
 Kanazawa University  
 Kenrokuen Garden  
 AIRPORT/LIMOUSINE BUS STOPS  
 Korinbo  
 Katamachi  
 Musashi-ga-tsugi

# The 1990 Western Pacific Geophysics Meeting

Kanazawa, Japan / August 21-25, 1990

## How To Use This Program

To find the information you need:

**Abstracts:** These were published in the July 10th issue of Eos. The abstracts are listed within sponsoring sections by day, in numerical order of presentation within each session.

**By subject:** Scan the Meeting Summary for sessions and jointly sponsored sessions of interest. After finding the day and time of the appropriate session(s), turn to the detailed program.

**Detailed Session Program:** The title, time, and room name or number appear for each session along with a full listing of the papers and their authors.

Known presenting authors are listed in **bold type**; and the presentations are oral unless otherwise indicated.

**By author:** Refer to the author surnames which are listed alphabetically in the index. Each author entry is followed by the numbers of all the published papers for which that person is either author or coauthor.

**The papers:** Paper numbers give the following information:

- the **initial letters** are the AGU section abbreviations (see the separate listing on this page)
- the **first digit** shows what day the paper is to be presented: 2, Tuesday; 3, Wednesday; 4, Thursday; 5, Friday; 6, Saturday
- the **second digit** indicates whether the presentation is in the morning or the afternoon: 1, A.M.; 2, P.M.
- the **number after the hyphen** indicates the paper's position in the sequence of papers in that session.

For example, paper number A22A-07 is in Atmospheric Sciences, is being presented on Tuesday afternoon (concurrent session A), and is the seventh paper in the session.

## AGU Section Abbreviations

A	Atmospheric Sciences
G	Geodesy
GP	Geomagnetism & Paleomagnetism
H	Hydrology
O	Ocean Sciences
P	Planetology
S	Seismology
SP	Solar-Planetary Relationships
T	Tectonophysics
V	Volcanology, Geochemistry, & Petrology

## The City of Kanazawa

With a population of 430,000, Kanazawa is both one of Japan's largest coastal cities and the seat of the Ishikawa prefectural government.

A charming blend of the old and the new, Kanazawa is well known as an ancient castle town and was once the headquarters of the Maeda clan. The most powerful feudal clan of Japan's Edo Period, the Maeda ruled for three centuries after 1583. Kanazawa has retained more of the Edo Period culture than any other city in Japan. For these reasons, there are many historic sites to visit, such as the castle, Kenrokuen Park and other monuments. In terms of traditional crafts, the city is comparable to Kyoto both in quality and skills.

There are many excellent restaurants where lunch or dinner costs from about 500 to 1000 yen.

## How To Reach the Hotels

**From Komatsu Airport:** Take the airport limousine bus that goes to Kanazawa train station. In Kanazawa City there are several stops, of which the last four are marked on the map on page 2. Most hotels are within walking distance of these stops.

**From Kanazawa Train Station:** It usually takes less than 15 minutes by taxi to most hotels. Taxi fare is up to about 1000 yen.

## How To Travel to the Convention Halls

Many of the hotels are within a 15-minute walk of the convention halls. From Kanazawa station, it takes 10-15 minutes by taxi to Kosei Nenkin Kaikan. Taxi fare is about 300 yen. You may also take Hokutetsu Bus 18 or 91. Get off at the 'Honda-machi' bus stop in front of Shakai Kyoiku Center (SKC). Bus fare is 180 yen.

## Registration Hours

The registration desk will be located at the entrance of Kosei Nenkin Kaikan convention hall (KNK). Registration hours are

18:00-20:00	Aug. 20	08:00-17:00	Aug. 22-24
08:30-17:00	Aug. 21	08:00-15:00	Aug. 25

## TUESDAY A.M.

U

**Frontiers of Geophysics**  
Session U21A KNK:Large Hall 1000h

U

## TUESDAY P.M.

**A** **Atmospheric Electricity**  
Session A22A KNK:Horai 1330h

**G** **Physics of Earthquakes and Recent Earthquakes I**  
Session S22A SKC:Large Hall 1330h

**Active Back Arcs I: Japan Sea**  
Session V22B SFK:Middle Hall 1330h

**GP** **Sedimentary Magnetism I**  
Session GP22A SKC:32.33 1330h

**H** **Global Processes/Precipitation**  
Session H22A KNK:Fuyo B 1330h

**P** **Future Planetary Missions**  
Session P22A KNK:Aioi 1330h (*joint with SP*)

**S** **Physics of Earthquakes and Recent Earthquakes I**  
Session S22A SKC:Large Hall 1330h (*joint with G,T*)

**Island Arc Volcanism and Upper Mantle Processes**  
Session V22A SFK:Large Hall 1330h

**SP** **Computer Experiments of Geospace Plasmas I**  
Session SP22A KNK:Kaga 1300h

**Ground, Balloon, and Rocket Observation of the Aurora I**

Session SP22B KNK:Fuyo A 1330h

**Future Planetary Missions**  
Session P22A KNK:Aioi 1330h

**T** **ODP Legs 124-131**  
Session T22A SFK:F 1330h

**Physics of Earthquakes and Recent Earthquakes I**  
Session S22A SKC:Large Hall 1330h

**Active Back Arcs I: Japan Sea**  
Session V22B SFK:Middle Hall 1330h

**V** **Island Arc Volcanism and Upper Mantle Processes**  
Session V22A SFK:Large Hall 1330h (*joint with S*)

**Active Back Arcs I: Japan Sea**  
Session V22B SFK:Middle Hall 1330h (*joint with G,T*)

Joint Session

### Meeting Facilities

Sessions will be held simultaneously at four public convention halls in Kanazawa City:

Ishikawa Kosei Nenkin Kaikan (KNK),  
Ishikawa-ken Shakai Fukushi Kaikan (SFK),  
Ishikawa Shakai Kyoiku Center (SKC),  
Kanazawa-Shi Kanko Kaikan (KKK).

These halls are within walking distance of each other in a park area near the famous Kenrokuen Garden in the middle of the city.

\* \* \*

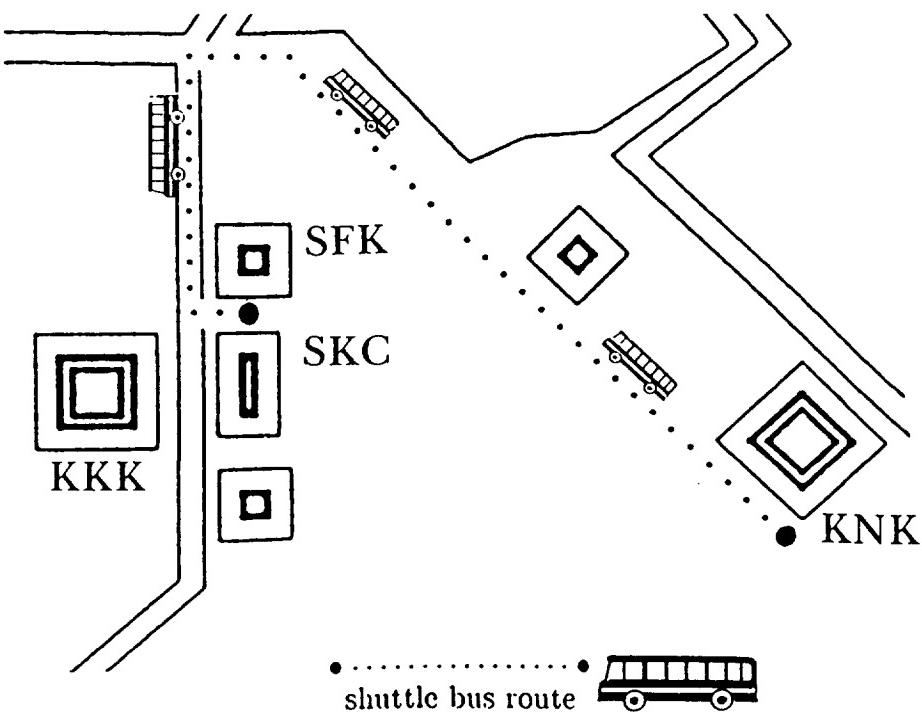
Many of the hotels are within a 15-minute walk of the convention halls. From Kanazawa station, it takes 10-15 minutes by taxi to Kosei Nenkin Kaikan. Taxi fare is about 300 yen. You may also take Hokutetsu Bus 18 or 91. Get off at the 'Honda-machi' bus stop in front of Shakai Kyoiku Center (SKC). Bus fare is 180 yen.

Registration is at Kosei Nenkin Kaikan (KNK), which is about a 10-minute walk through the park from the other halls.

\* \* \*

A courtesy microbus shuttle service is available during the session hours. This shuttle runs every 10 minutes, and takes about 5 minutes to go from Kosei Nenkin Kaikan (KNK) to Shakai Fukushi Kaikan (SFK) and Shakai Kyoiku Center (SKC). Kanko Kaikan (KKK) is just across the street.

### The Courtesy Shuttle Service Runs During the Sessions



shuttle bus route

## WEDNESDAY A.M.

<b>U</b>	<b>Fifty Years of Helium 3 Geophysics I</b> Session U31A SFK:F 0830h		<b>P</b>	<b>Physics of Outer Planets</b> Session P31A SKC:32.33 0830h
<b>A</b>	<b>Typhoons and Tropical Meteorology</b> Session A31A KNK:Horai 0830h		<b>S</b>	<b>Physics of Earthquakes and Recent Earthquakes II</b> Session S31A SKC:Large Hall 0930h ( <i>joint with G,T</i> )
	<b>Coupled Ocean-Land-Atmosphere Interaction</b> Session A31B KNK:Horai 1045h ( <i>joint with O</i> )			<b>Magma Dynamics and Eruptive Processes</b> Session V31A SFK:Large Hall 0830h <span style="float: right;">□</span>
<b>G</b>	<b>Aeronomy Posters</b> Session SP31C KKK:Large Assembly 0830h	<b>POSTERS</b> <span style="border: 1px solid black; padding: 2px;">□</span>	<b>SP</b>	<b>Computer Experiments of Geospace Plasmas II</b> Session SP31A KNK:Kaga 0900h
	<b>Physics of Earthquakes and Recent Earthquakes II</b> Session S31A SKC:Large Hall 0930h <span style="float: right;">□</span>			<b>Ground, Balloon, and Rocket Observation of the Aurora II</b> Session SP31B KNK:Fuyo A 0900h
<b>G</b>	<b>Active Back Arcs II: Okinawa Trough</b> Session V31B SFK:Middle Hall 0830h <span style="float: right;">□</span>			<b>Aeronomy Posters</b> Session SP31C KKK:Large Assembly 0830h ( <i>joint with A</i> ) <span style="float: right;"><b>POSTERS</b> <span style="border: 1px solid black; padding: 2px;">□</span></span>
<b>GP</b>	<b>Sedimentary Magnetism II</b> Session GP31A SKC:21 0830h		<b>T</b>	<b>Physics of Earthquakes and Recent Earthquakes II</b> Session S31A SKC:Large Hall 0930h <span style="float: right;">□</span>
<b>H</b>	<b>Water and Solute Transport in the Unsaturated Zone I</b> Session H31A KNK:Fuyo B 0830h			<b>Active Back Arcs II: Okinawa Trough</b> Session V31B SFK:Middle Hall 0830h <span style="float: right;">□</span>
<b>O</b>	<b>Effect of Marginal Seas on West Pacific Water Masses I</b> Session O31A KNK:Aioi 0830h		<b>V</b>	<b>Magma Dynamics and Eruptive Processes</b> Session V31A SFK:Large Hall 0830h ( <i>joint with S</i> )
	<b>Coupled Ocean-Land-Atmosphere Interaction</b> Session A31B KNK:Horai 1045h <span style="float: right;">□</span>			<b>Active Back Arcs II: Okinawa Trough</b> Session V31B SFK:Middle Hall 0830h ( <i>joint with G,T</i> )

## WEDNESDAY P.M.

<b>U</b>	<b>Fifty Years of Helium 3 Geophysics II</b> Session U32A SFK:F 1330h		<b>SP</b>	<b>Global Structures of MHD Waves I</b> Session SP32A KNK:Kaga 1330h
<b>A</b>	<b>Winds and Clouds</b> Session A32A KNK:Horai 1330h			<b>Cusp, Mantle, and Field-Aligned Currents</b> Session SP32B KNK:Fuyo A 1330h
<b>G</b>	<b>Physics of Earthquakes and Recent Earthquakes III</b> Session S32A SKC:Large Hall 1330h <span style="float: right;">□</span>			<b>Titan, Io, and Mars</b> Session SP32C KNK:Fuyo A 1600h
<b>G</b>	<b>Active Back Arcs III: Bonin Arc</b> Session V32B SFK:Middle Hall 1330h <span style="float: right;">□</span>			<b>Computer Experiments of Geospace Plasmas III</b> Posters Session SP32D KKK:Large Assembly 1330h <span style="float: right;"><b>POSTERS</b> <span style="border: 1px solid black; padding: 2px;">□</span></span>
<b>GP</b>	<b>Paleomagnetism-Rock Magnetism</b> Session GP32A SKC:21 1330h		<b>T</b>	<b>Physics of Earthquakes and Recent Earthquakes III</b> Session S32A SKC:Large Hall 1330h <span style="float: right;">□</span>
<b>H</b>	<b>Water and Solute Transport in the Unsaturated Zone II</b> Session H32A KNK:Fuyo B 1330h			<b>Active Back Arcs III: Bonin Arc</b> Session V32B SFK:Middle Hall 1330h <span style="float: right;">□</span>
<b>O</b>	<b>Effect of Marginal Seas on West Pacific Water Masses II</b> Session O32A KNK:Aioi 1330h		<b>V</b>	<b>Volcanic Seismology and Eruptive Precursors</b> Session V32A SFK:Large Hall 1330h ( <i>joint with S</i> )
<b>P</b>	<b>Origin and Evolution of the Solar System I</b> Session P32A SKC:32.33 1345h			<b>Active Back Arcs III: Bonin Arc</b> Session V32B SFK:Middle Hall 1330h ( <i>joint with G,T</i> )
<b>S</b>	<b>Physics of Earthquakes and Recent Earthquakes III</b> Session S32A SKC:Large Hall 1330h ( <i>joint with G,T</i> )			
	<b>Volcanic Seismology and Eruptive Precursors</b> Session V32A SFK:Large Hall 1330h <span style="float: right;">□</span>			

## THURSDAY A.M.

G	<b>Dynamical Processes in the Middle Atmosphere I</b> Session SP41B KNK:Fuyo A 0830h	SP	<b>Solar, Interplanetary Physics and Magnetic Storms</b> Session SP41A KNK:Kaga 0900h
GP	<b>Geomagnetism and Electromagnetic Induction</b> Session GP41A SKC:21 0830h		<b>Dynamical Processes in the Middle Atmosphere I</b> Session SP41B KNK:Fuyo A 0830h ( <i>joint with A</i> )
H	<b>Surface Water Hydrology I</b> Session H41A KNK:Fuyo B 0830h		<b>Plasma Waves, Instabilities, and Chaos</b> Session SP41C KNK:Horai 0830h
O	<b>Deep and Intermediate Water Circulation I</b> Session O41A KNK:Aioi 0830h		<b>Global Structures of MHD Waves II Posters</b> Session SP41D KKK:Large Assembly 0930h
P	<b>Origin and Evolution of the Solar System II</b> Session P41A SFK:F 0830h		<b>POSTERS</b>
S	<b>Dynamics and Structure of Plate Boundaries I</b> Session S41A SKC:Large Hall 0830h ( <i>joint with T</i> )	T	<b>Rifting, Back Arc Basins, and Tectonics I</b> Session T41A SFK:F 0930h
	<b>Wave Propagation and Analytical Techniques</b> Session S41B SKC:32.33 0900h		<b>Dynamics and Structure of Plate Boundaries I</b> Session S41A SKC:Large Hall 0830h
	<b>Izu-Oshima Volcano/1986 Eruption</b> Session V41A SFK:Large Hall 0830h	V	<b>Izu-Oshima Volcano/1986 Eruption</b> Session V41A SFK:Large Hall 0830h ( <i>joint with S</i> )
	<b>Volcanic Avalanche and Pyroclastic Flow</b> Session V41B SFK:Middle Hall 0830h		<b>Volcanic Avalanche and Pyroclastic Flow</b> Session V41B SFK:Middle Hall 0830h ( <i>joint with S</i> )

## THURSDAY P.M.

A	<b>Dynamical Processes in the Middle Atmosphere II</b> Session SP42B KNK:Fuyo A 1330h	SP	<b>Global Structures of MHD Waves III</b> Session SP42A KNK:Kaga 1330h
G	<b>Earth Rotation and Dynamics</b> Session G42A SKC:21 1330h		<b>Dynamical Processes in the Middle Atmosphere II</b> Session SP42B KNK:Fuyo A 1330h ( <i>joint with A</i> )
H	<b>Stable and Radioactive Isotopes in Hydrology I</b> Session H42A KNK:Fuyo B 1330h		<b>Magnetic Storms and Magnetic Quiet Periods</b> Session SP42C KNK:Horai 1330h
O	<b>Deep and Intermediate Water Circulation II</b> Session O42A KNK:Aioi 1330h	T	<b>Rifting, Back Arc Basins, and Tectonics II</b> Session T42A SFK:Middle Hall 1330h
S	<b>Dynamics and Structure of Plate Boundaries II</b> Session S42A SKC:Large Hall 1330h ( <i>joint with T</i> )		<b>Dynamics and Structure of Plate Boundaries II</b> Session S42A SKC:Large Hall 1330h
	<b>Seismicity and Magnitudes</b> Session S42B SKC:32.33 1330h	V	<b>Off-Ito Eruption 1989 and Long Valley Caldera</b> Session V42A SFK:Large Hall 1330h ( <i>joint with S</i> )
	<b>Off-Ito Eruption 1989 and Long Valley Caldera</b> Session V42A SFK:Large Hall 1330h		<b>Magmatic Volatiles and Hydrothermal Processes</b> Session V42B SFK:F 1330h

### Japan's Currency

The Japanese yen is the only currency in use. There are notes for 10,000 yen, 5000 yen and 1000 yen; and coins for 500 yen, 100 yen, 50 yen, 10 yen, 5 yen and 1 yen. You can exchange foreign currencies at major banks or at hotel fronts.

Travelers checks can be used at hotels, many restaurants and shops, although local shops may accept only cash. Major credit cards (VISA, MasterCard, Amex, Diners, etc.) are used commonly, but you must

be sure to use an international card.

Personal checks are not accepted. You will need to pay in cash for train, bus and taxi fares. In general, cash is used much more than in the United States.

### Tips and Taxes

Tips for service are not usual in Japan. Instead, such charges are either included in overall costs or added to the bill as a service charge. A 3% sales tax is added to most charges and prices.

## FRIDAY A.M.

A	<b>Stratospheric Ozone and Atmospheric Chemistry I</b> Session SP51B KNK:Fuyo A 0830h	[J]	SP	<b>Highlights of the EXOS-D, Viking, and DE Projects I</b> Session SP51A KNK:Kaga 0830h
G	<b>Gravity, Sea Level, and Vertical Motion</b> Session G51A SKC:21 0830h			<b>Stratospheric Ozone and Atmospheric Chemistry I</b> Session SP51B KNK:Fuyo A 0830h ( <i>joint with A</i> )
	<b>Dynamics and Structure of the Deep Interior I</b> Session S51B SKC:32.33 1000h	[J]	T	<b>High Pressure</b> Session T51A SFK:F 0845h
GP	<b>Dynamics and Structure of the Deep Interior I</b> Session S51B SKC:32.33 1000h	[J]		<b>Dynamics and Structure of Plate Boundaries III</b> Session S51A SKC:Large Hall 0930h
H	<b>Surface Water Hydrology II</b> Session H51A KNK:Fuyo B 0830h			<b>Dynamics and Structure of the Deep Interior I</b> Session S51B SKC:32.33 1000h
	<b>Contaminant Transport: Theory and Interpretation</b> Session H51B KNK:Horai 0830h			<b>Geodynamics and Evolution of the Earth I</b> Session V51A SFK:Large Hall 0830h
O	<b>Waves, Tides, and Turbulence</b> Session O51A KNK:Aioi 0830h		V	<b>Geodynamics and Evolution of the Earth I</b> Session V51A SFK:Large Hall 0830h ( <i>joint with P,S,T</i> )
P	<b>Geodynamics and Evolution of the Earth I</b> Session V51A SFK:Large Hall 0830h	[J]		<b>Petrologic Studies of Volcanoes I</b> Session V51B SFK:Middle Hall 0830h ( <i>joint with S</i> )
S	<b>Dynamics and Structure of Plate Boundaries III</b> Session S51A SKC:Large Hall 0930h ( <i>joint with T</i> )			<b>Dynamics and Structure of the Deep Interior I</b> Session S51B SKC:32.33 1000h
	<b>Dynamics and Structure of the Deep Interior I</b> Session S51B SKC:32.33 1000h ( <i>joint with G,GP,T,V</i> )			
	<b>Geodynamics and Evolution of the Earth I</b> Session V51A SFK:Large Hall 0830h	[J]		
	<b>Petrologic Studies of Volcanoes I</b> Session V51B SFK:Middle Hall 0830h	[J]		

## FRIDAY P.M.

A	<b>Stratospheric Ozone and Atmospheric Chemistry II</b> Session SP52B KNK:Fuyo A 1330h	[J]	SP	<b>Highlights of the EXOS-D, Viking, and DE Projects II</b> Session SP52A KNK:Kaga 1330h
G	<b>Western Pacific GPS</b> Session G52A SKC:21 1330h ( <i>joint with T</i> )			<b>Stratospheric Ozone and Atmospheric Chemistry II</b> Session SP52B KNK:Fuyo A 1330h ( <i>joint with A</i> )
GP	<b>Dynamics and Structure of the Deep Interior II</b> Session S52B SKC:32.33 1330h			<b>Solar Wind Interactions With Venus</b> Session SP52C KNK:Horai 1330h ( <i>joint with P</i> )
H	<b>Stable and Radioactive Isotopes in Hydrology II</b> Session H52A KNK:Fuyo B 1330h		T	<b>Rheology and Heat Flow</b> Session T52A SFK:F 1330h
O	<b>Western Boundary Currents I</b> Session O52A KNK:Aioi 1330h			<b>Western Pacific GPS</b> Session G52A SKC:21 1330h
P	<b>Solar Wind Interactions With Venus</b> Session SP52C KNK:Horai 1330h	[J]		<b>Dynamics and Structure of Plate Boundaries IV</b> Session S52A SKC:Large Hall 1330h
	<b>Geodynamics and Evolution of the Earth II</b> Session V52A SFK:Large Hall 1330h	[J]		<b>Dynamics and Structure of the Deep Interior II</b> Session S52B SKC:32.33 1330h
S	<b>Dynamics and Structure of Plate Boundaries IV</b> Session S52A SKC:Large Hall 1330h ( <i>joint with T</i> )			<b>Geodynamics and Evolution of the Earth II</b> Session V52A SFK:Large Hall 1330h
	<b>Dynamics and Structure of the Deep Interior II</b> Session S52B SKC:32.33 1330h ( <i>joint with G,GP,T,V</i> )		V	<b>Geodynamics and Evolution of the Earth II</b> Session V52A SFK:Large Hall 1330h ( <i>joint with P,S,T</i> )
	<b>Geodynamics and Evolution of the Earth II</b> Session V52A SFK:Large Hall 1330h	[J]		<b>Petrologic Studies of Volcanoes II</b> Session V52B SFK:Middle Hall 1330h ( <i>joint with S</i> )
	<b>Petrologic Studies of Volcanoes II</b> Session V52B SFK:Middle Hall 1330h	[J]		<b>Dynamics and Structure of the Deep Interior II</b> Session S52B SKC:32.33 1330h

## SATURDAY A.M.

G	<b>Seismotectonic Studies I</b> Session G61A SFK:F 0830h	SP	<b>Highlights of the EXOS-D, Viking, and DE Projects III</b> Session SP61A KNK: Kaga 0830h
H	<b>Subsurface Transport: New Measurement Techniques</b> Session H61A KNK:Fuyo B 0830h		<b>Substorms and Magnetosphere-Ionosphere Coupling Systems I</b> Session SP61B KNK:Fuyo A 0900h
O	<b>Western Boundary Currents II</b> Session O61A KNK:Aioi 0830h	T	<b>Deep Earthquakes/Subduction Zones</b> Session T61A SFK:Large Hall 0830h
P	<b>Geodynamics and Evolution of the Earth III</b> Session V61A SKC:Large Hall 0830h	V	<b>Geodynamics and Evolution of the Earth III</b> Session V61A SKC:Large Hall 0830h (joint with P,S,T)
S	<b>Earthquake Prediction and Hazard Assessment I</b> Session S61A SFK:Middle Hall 0830h		
	<b>Geodynamics and Evolution of the Earth III</b> Session V61A SKC:Large Hall 0830h		

## SATURDAY P.M.

G	<b>Seismotectonic Studies II</b> Session G62A SFK:F 1330h	SP	<b>Highlights of the EXOS-D, Viking, and DE Projects IV</b> Session SP62A KNK:Kaga 1330h
H	<b>Snow Hydrology and Spatial Scaling</b> Session H62A KNK:Fuyo B 1330h		<b>Substorms and Magnetosphere-Ionosphere Coupling Systems II</b> Session SP62B KNK:Fuyo A 1330h
O	<b>Biogeochemical Flux and Cycling</b> Session O62A KNK:Aioi 1330h	T	<b>Geodynamics and Evolution of the Earth IV</b> Session V62A SFK:Large Hall 1330h
P	<b>Geodynamics and Evolution of the Earth IV</b> Session V62A SFK:Large Hall 1330h	V	<b>Geodynamics and Evolution of the Earth IV</b> Session V62A SFK:Large Hall 1330h (joint with P,S,T)
S	<b>Earthquake Prediction and Hazard Assessment II</b> Session S62A SFK:Middle Hall 1330h		
	<b>Geodynamics and Evolution of the Earth IV</b> Session V62A SFK:Large Hall 1330h		

### Social Events

**Ice Breaker Reception**, August 21 (Tuesday), 18:00-20:00 h, MRO Hall, free of charge. Light meal, beer and soft drinks are provided. The MRO Hall is located next to the Shakai Kyoiku Center (SKC).

**Noh Play**, August 23 (Thursday), 17:30-18:30 h, Nohgakudo Hall, ¥1,000. Noh is Japan's traditional theatrical art, embodying music, dance and literary art. Nohgakudo Hall is located next to Kosei Nenkin Kaikan.

**Banquet**, August 23 (Thursday), 19:00-21:00 h. Kosei Nenkin Kaikan, (KNK) ¥ 6,000.

\* \* \*

Many of the hotels are within a 15-minute walk of the convention halls. From Kanazawa station, it takes 10-15 minutes by taxi to Kosei Nenkin Kaikan. Taxi fare is about 300 yen. You may also take Hokutetsu Bus 18 or 91. Get off at the 'Honda-machi' bus stop in front of Shakai Kyoiku Center (SKC). Bus fare is 180 yen.

### The Courtesy Shuttle Service

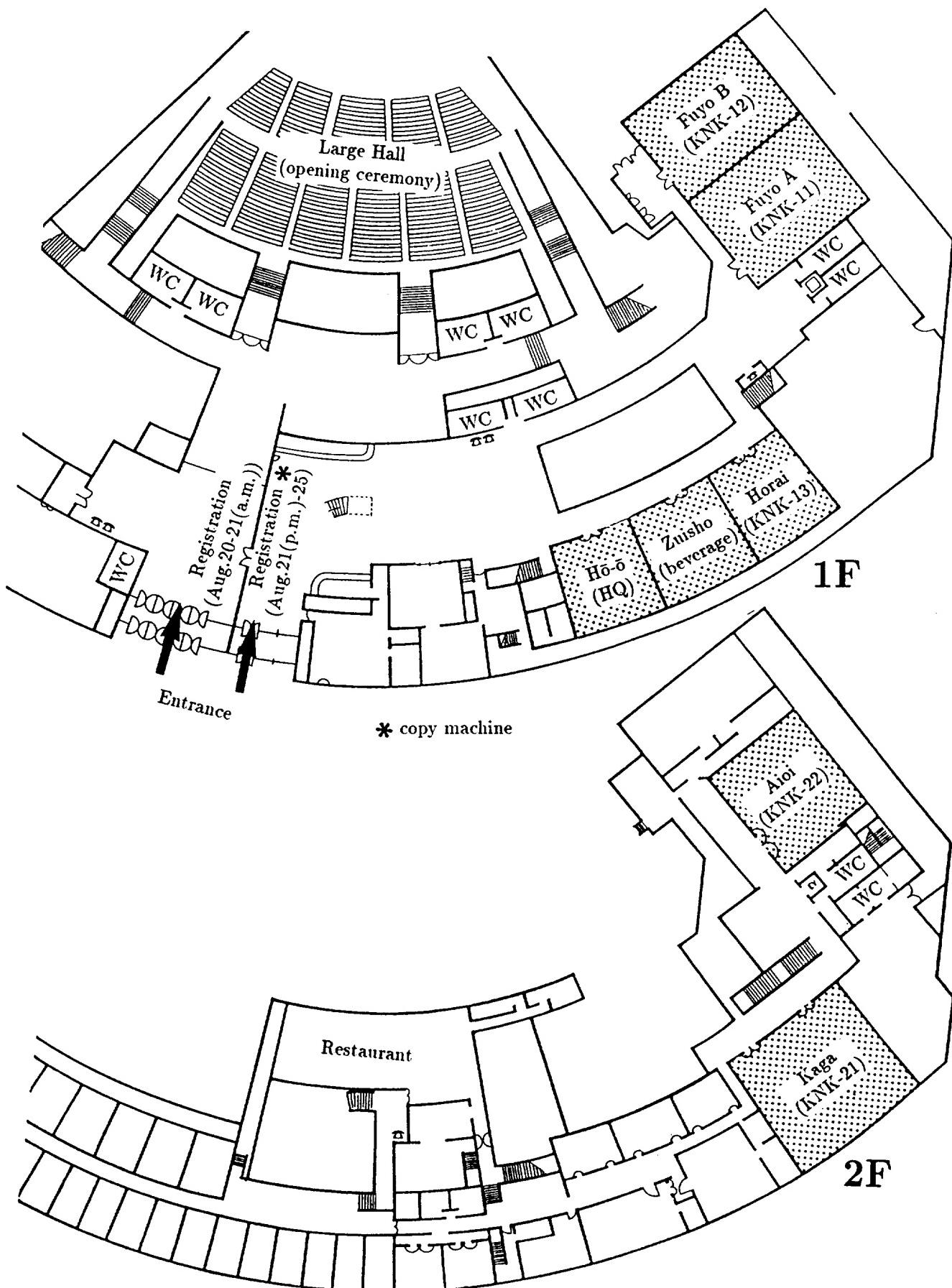
A courtesy microbus shuttle service is available during the session hours. This shuttle will run every 10 minutes, and take about 5 minutes to go from Kosei Nenkin Kaikan (KNK) to Shakai Fukushi Kaikan (SFK) and Shakai Kyoiku Center (SKC). Kanko Kai-kan (KKK) is just across the street.

### The Weather in August

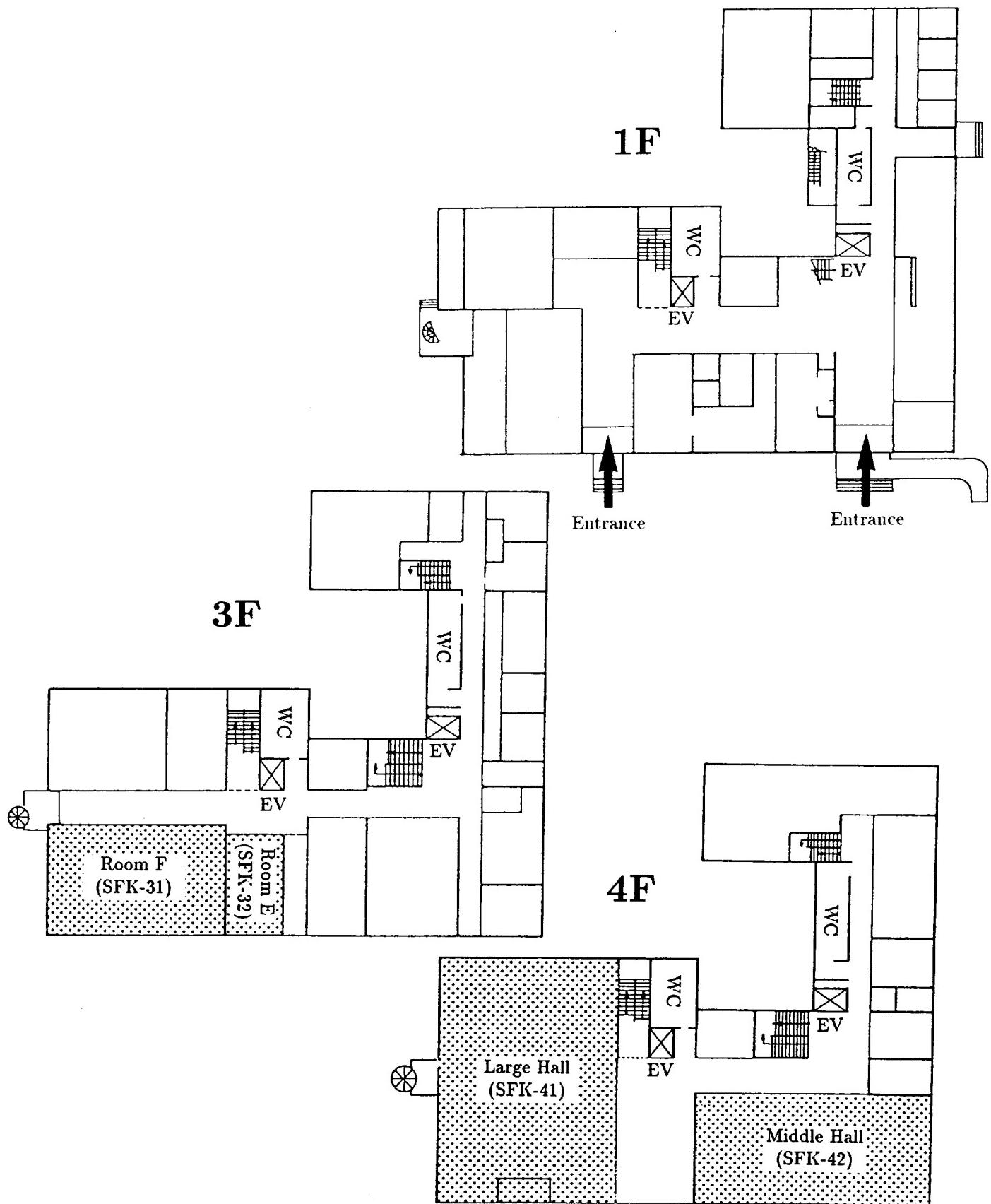
Average daily minimum and maximum temperatures in August are 22°C (72°F) and 30°C (86°F), respectively. However, you may feel hotter because of the relatively high humidity (average RH is 77%). Hotel rooms are air conditioned.

An umbrella or rain coat is necessary equipment since heavy showers are not unusual most days.

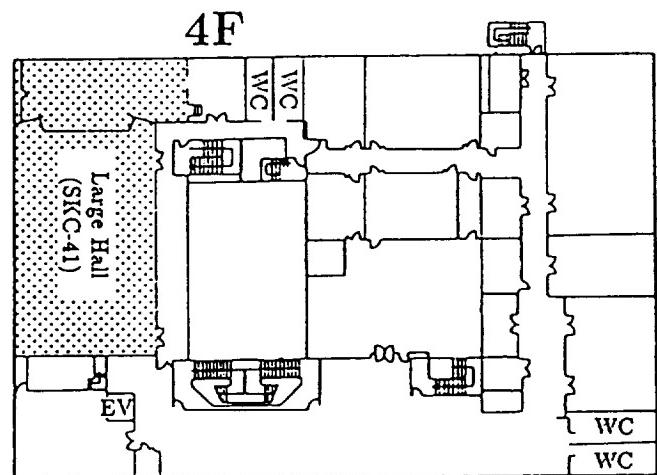
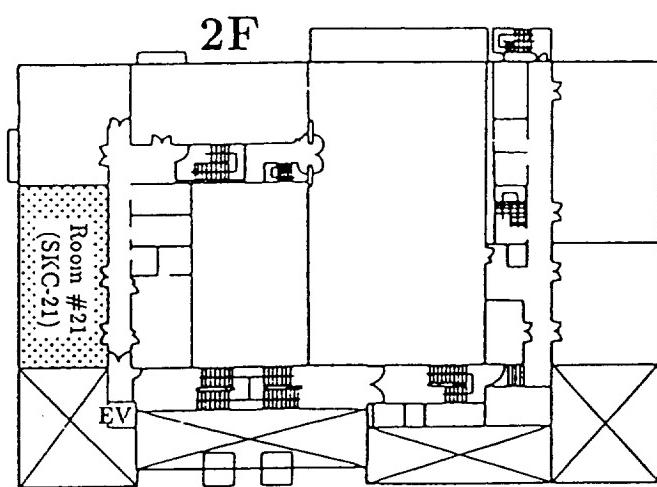
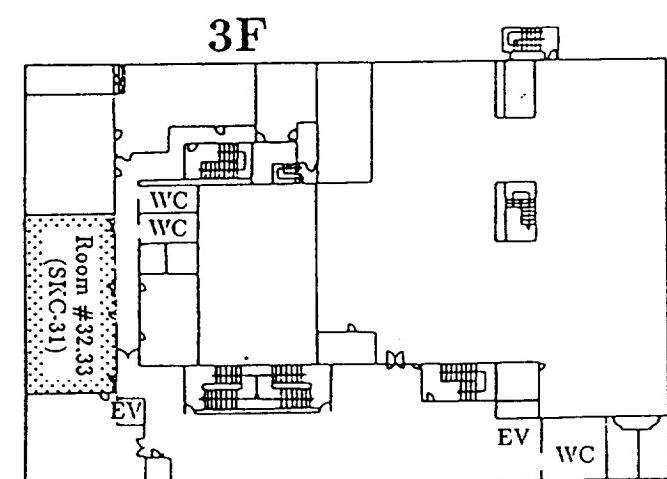
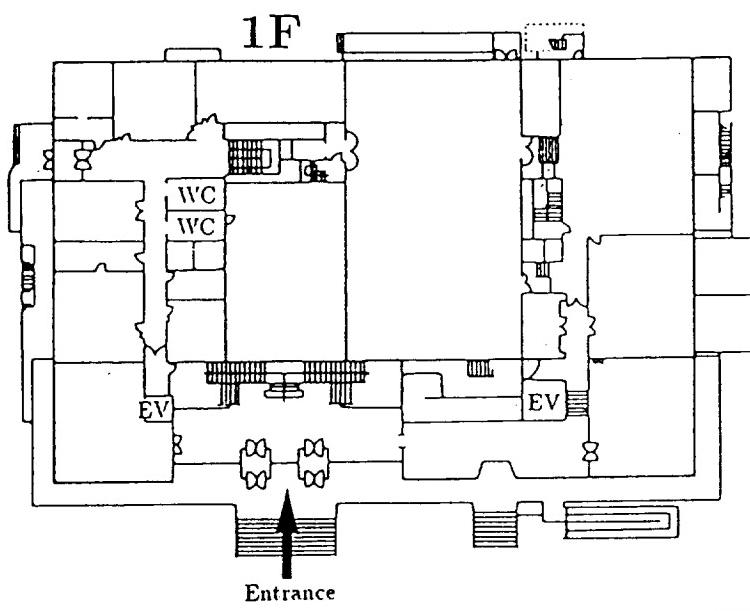
# KNK: Kosei Nenkin Kaikan (厚生年金会館)



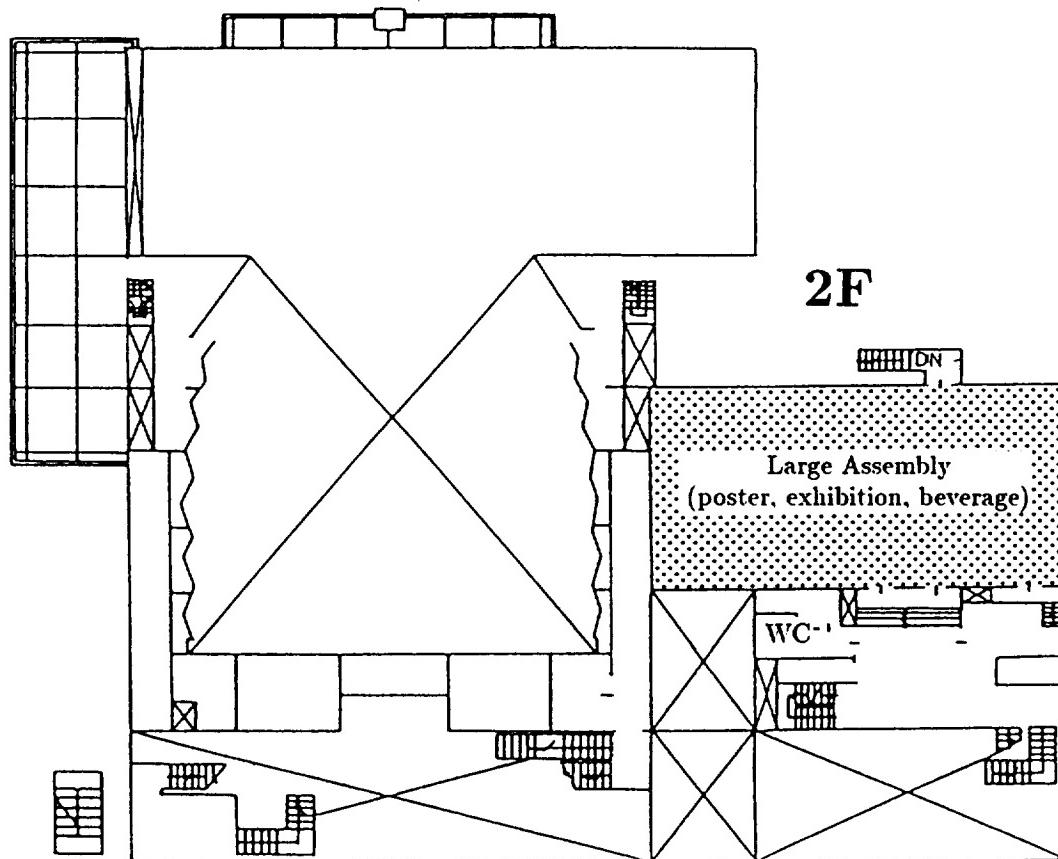
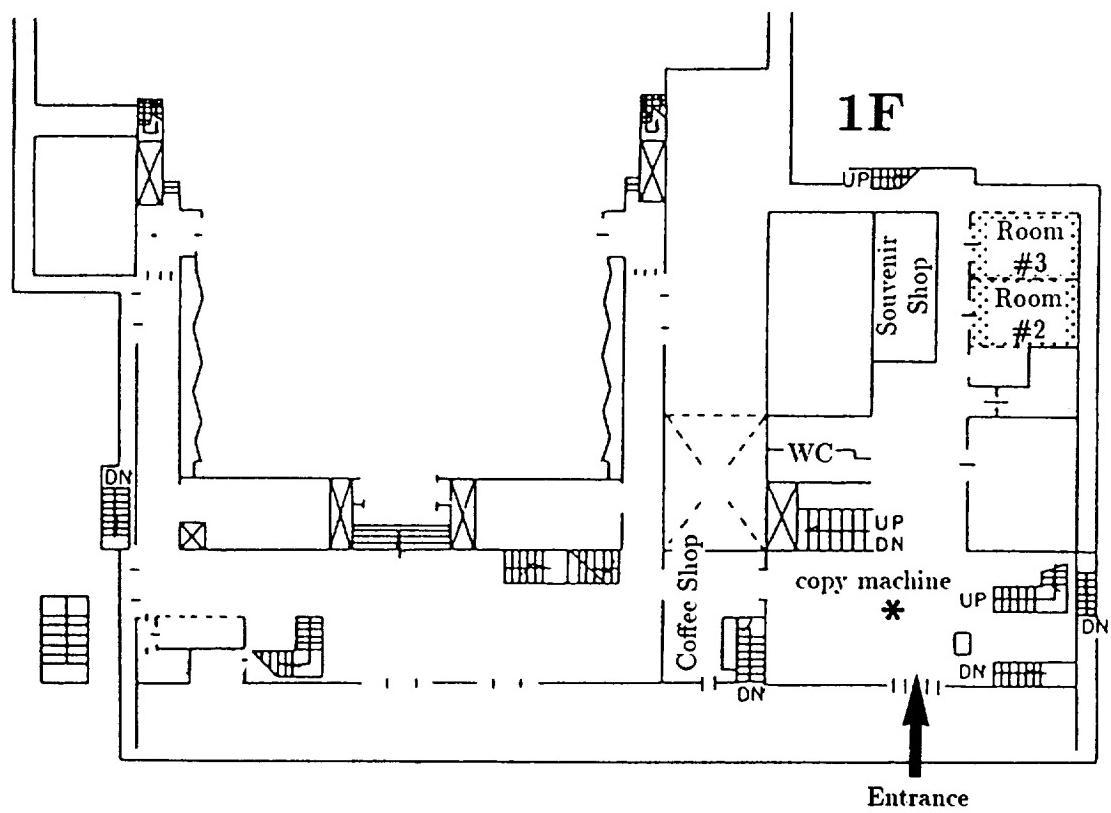
# SFK: Shakai Fukushi Kaikan (社会福祉会館)



# SKC: Shakai Kyoiku Center (社会教育センター)



# KKK: Kanko-Kaikan (觀光會館)



# Detailed Session Program

## Tuesday A.M.

**Paper Numbers.** A paper number designates the section, or other sponsoring group, and chronology of the presentation. Sample T21A-01.

Section	Day	Time	Session	Sequence in Session
T	2 = Tues.	1 = AM	A	01
	3 = Wed.	2 = PM	B	
	4 = Thur.		C	
	5 = Fri.		D	
	6 = Sat.			

Thus, T21A-01 = Tectonophysics, Tuesday, AM, concurrent session A, first paper in that session.

**U21A KNK: Large Hall Tues 1000 h**

### Frontiers of Geophysics

*Presiding:* Y Honkura, Tokyo Inst. of Tech; C Harrison, RSMAS/Univ of Miami

1000 h U21A-01 *INVITED* Subductology: Its Local, Regional and Global Implications: S Uyeda

1040 h U21A-02 *INVITED* Space Geodesy: The Third Decade: J B Minster

1120 h U21A-03 *INVITED* Climate Changes Due to the Increase of Greenhouse Gases—An Overview of the Present Status of Research: T Matsuno

## Tuesday P.M.

**Paper Numbers.** A paper number designates the section, or other sponsoring group, and chronology of the presentation. Sample T22A-01.

Section	Day	Time	Session	Sequence in Session
T	2 = Tues.	1 = AM	A	01
	3 = Wed.	2 = PM	B	
	4 = Thur.		C	
	5 = Fri.		D	
	6 = Sat.			

Thus, T22A-01 = Tectonophysics, Tuesday, PM, concurrent session A, first paper in that session.

**A22A KNK: Horai Tues 1330 h**

### Atmospheric Electricity

*Presiding:* Z Kawasaki, Ohsaka Univ

1330 h A22A-01 Spectrum Analysis for Electric Field, Pressure and Wind Velocity at the Earth's Surface: K Narita, Y Goto, H Komuro

1345 h A22A-02 Meteorological Aspects of Winter Thunderstorms Along the Japan Sea Coast: N Kitagawa

1400 h A22A-03 An Investigation of the Relationships Between Solar Sector Boundary Crossings and Global Lightning Frequency Observed by the ISS-b Satellite During 1978-1980: T G Beuthe, J S Chang, M Kotaki

1415 h A22A-04 On the Fine Structure of Multiple-stroke Flashes During Winter Thunderstrom in Japan: Z I Kawasaki, K Matsuura, Y Aiki, T Kanao, K Yamamoto, M Nagatani, T Takeuti, M Nakano, H Nakada

1430 h A22A-05 Detection of Cloud-to-Ground Lightning Strokes in Winter by a Magnetic Direction Finder: M Ishii, J Hojo

**BREAK**

1515 h A22A-07 Triggered Lightning Striking to Several Transmission Line Towers: M Nakano, Y Kawamata, T Takeuti, Z I Kawasaki

1530 h A22A-08 Artificially Triggered Lightning Experiments to a Transmission Line and Apparatus: K Nakamura, K Horii, S Aiba, M Nakano

1545 h A22A-09 Currents Measurements of Rocket Triggered Lightning: A Wada, K Horii, M Nakano, K Nakamura, M Yoda

1600 h A22A-10 A Study of Lightning Strikes to Aircraft in the Winter in the Area Surrounding Kanazawa (Komatsu Airport): K Michimoto

**GP22A SKC: 32.33 Tues 1330 h**

### Sedimentary Magnetism I

*Presiding:* J E T Channell, Univ of Florida; M Hyodo, Kobe Univ

1330 h GP22A-01 *INVITED* Magnetic Grain Size of Deep-Sea Sediments: What Controls?: T Yamazaki

1355 h GP22A-02 Contribution of Magnetotactic Bacteria to the Sediment Magnetization: M Funaki, H Sakai, H Hirose, Y Tamura, Y Fukumori

1410 h GP22A-03 Further Magnetostratigraphic Results From Shallow-Water Carbonates: Constraints on the Growth of Mururoa Atoll, French Polynesia: D Aissaoui, J L Kirschvink

1425 h GP22A-04 The Use of NRM:IRM(s) Demagnetization Plots in Evaluating Sedimentary Magnetism: K L Verosub

1440 h GP22A-05 The Origin of Natural Remanent Magnetization of Loess Sequence: H Liu, K Yaskawa

**BREAK**

1510 h GP22A-07 Magnetic Fabric Study of a Meandering Paleocurrent System: C Caballero-Miranda, J Urrutia-Fucugauchi, G Silva-Romo

1525 h GP22A-08 *INVITED* Magnetic Mineral Diagenesis in Sediments and Sedimentary Rocks and Its Effects on the Paleomagnetic Record: R Karlin

1550 h Lepido WITHDRAWN erse During the Transformation?: O Ozde

1605 h GP22A-10 Chemical Remanent Magnetization in Synthetic Hematite: Implications for Sedimentary Magnetism: L B Stokking, L Tauxe

**1620 h GP22A-11** Paleomagnetism of the Tansen Group in the Lesser Himalaya, Nepal: Evidence for Large-Scale Northward Motion Since the Early Cretaceous: P Gautam, Y Fujiwara

**1635 h GP22A-12** Chemical Remanent Magnetization in Paleozoic Sedimentary Rocks in Australia That Constrains the Gondwanan APWP: G A Thrupp, Z X Li

**H22A KNK: Fuyo B Tues 1330 h**  
**Global Processes/Precipitation**

**Presiding:** T Wilheit, Texas A&M Univ; F Yoshino, Public Works Res. Inst.

**1330 h H22A-01** INVITED Evaluation of General Circulation Model Hydrologic Representations Using a Hydro-Meteorological Data Set for the Continental United States: D Lettenmaier, E F Wood, J R Wallis

**1355 h H22A-02** Observation of Local Rain Characteristics by Broadcasting Satellite Signals and the MU Radar: T Yamada, T Taguchi, T Sato, I Kimura

**1410 h H22A-03** INVITED Synthetic Aperture Microwave Radiometer for Global Soil Moisture Measurements: D M Le Vine, C T Swift, T Jackson

**1435 h H22A-04** INVITED Estimation of Evaporation Over Global Oceans Using Satellite Data: W T Liu

**1500 h BREAK**

**1515 h H22A-06** Observation of Clouds Over the Japan Sea Under Winter Monsoon Using Satellite Remote Sensing: T Koike, I Goto, T Mizuno

**1530 h H22A-07** Global Estimates of Oceanic Rain From SSM/I Measurements: T T Wilheit, A T C Chang, L S Chiu

**1545 h H22A-08** Spaceborne Rain Radar for Tropical Rainfall Measurement: K Nakamura, K Okamoto, T Ihara, J Awaka, T Kozu, T Manabe

**1600 h H22A-09** Statistical Framework for Validation of Satellite Rainfall With Groundbased Rainfall Estimates: W F Krajewski, I Rodriguez-Iturbe

**1615 h H22A-10** Raindrop Size Distribution in Darwin, Australia: D A Short, T Kozu, K Nakamura

**1630 h H22A-11** Relation Between NOAA Imageries and Rainfalls on the Ground: K Takeuchi

**P22A KNK: Aioi Tues 1330 h**  
**Future Planetary Missions (joint with SP)**  
**Presiding:** J Boyce, NASA Headquarters

**1330 h P22A-01** INVITED Japanese Lunar Penetrator Mission in the Middle of 1990s: H Mizutani, A Fujimura, S Tanaka, N Kawashima, I Yamada

**1355 h P22A-02** 243 Ida Is a Single Fragment, Not a Rubble Pile Remnant: Y Takagi, H Mizutani

**1410 h P22A-03** INVITED Future Space Physics Missions: D N Baker

**1435 h P22A-04** The NASA Solar Probe Mission: Science: B T Tsurutani

**1450 h BREAK**

**1505 h P22A-06** INVITED A Close Exploration of the Sun—The Solar Probe Mission: J E Randolph

**1530 h P22A-07** Investigation of Magnetosphere/Ionosphere in the Inner Planets: K Tsuruda, T Mukai, T Ogawa

**1545 h P22A-08** INVITED Lunar Observer and Global Geoscience of the Moon: P D Spudis

**1610 h P22A-09** INVITED The Comet Rendezvous Asteroid Flyby Mission: P R Weissman, M M Neugebauer

**1635 h P22A-10** INVITED Mars Observer: The Next Mission to Mars: F D Palluconi, A L Albee

**S22A SKC: Large Hall Tues 1330 h**  
**Physics of Earthquakes and Recent Earthquakes I**  
(joint with G,T)

**Presiding:** T Mikumo, Kyoto Univ

**1330 h S22A-01** A Mechanical Interpretation of Velocity Dependent Friction in Simulated Fault Gouge: C Marone

**1345 h** WITHDRAWN del of the Initiation of R Bieg, G N Boitnott,

**1400 h S22A-03** Fracture Nucleation Within a Seismic Source Region: H Yukutake

**1415 h S22A-04** Slip-Dependent Friction Law and Nucleation Process in Earthquake Rupture: M Mats'ura, H Kataoka, B Shibazaki

**1430 h S22A-05** Earthquake Source Nucleation: A Physical Interpretation of Short-Term Precursors: M Ohnaka

**1445 h S22A-06** Estimation of the Effective Stress at an Introductory Stage of Rupture Process: M Kikuchi

**1500 h BREAK**

**1515 h S22A-08** Dynamic Fault Rupture Processes Under Depth-Dependent Shear Stress and Frictional Constitutive Relations: T Mikumo

**1530 h S22A-09** A Multifractal Model of the Spatial Energy Distribution of Earthquakes: K Ito, T Hirabayashi

**1545 h S22A-10** Comparison of Local Tomographic P-Wave Velocity Variations in California and Washington: Can We Image Fault Asperities?: J M Lees

**1600 h S22A-11** Gravity Change due to Shear and Tensile Faults: S Okubo

**1615 h S22A-12** Piezomagnetic Change due to Shear and Tensile Faults: Y Sasai

**1630 h S22A-13** Drilling Into Earthquake Foci: Preliminary Results: H Tsukahara, R Ikeda

**SP22A KNK: Kaga Tues 1300 h**  
**Computer Experiments of Geospace Plasmas I**  
**Presiding:** H Matsumoto, Kyoto Univ

**1300 h SP22A-01** INVITED Two-Dimensional Hybrid Simulations of the Magnetopause: K B Quest

**1325 h SP22A-02** INVITED Computer Simulation of Driven Reconnection in the Earth's Dayside Magnetopause: Z F Fu

**1350 h SP22A-03** INVITED Simulation Study of the Kelvin-Helmholtz Instability at the Magnetospheric Boundary: A Miura

**1415 h SP22A-04** Controlling Parameters for Formation of MHD Shocks: Y C Whang

**1430 h SP22A-05** Computer Experiments on the Electrodynamics of High Potential Tethered Satellite: H Usui, H Matsumoto, Y Omura

**1445 h** **BREAK**

**1505 h SP22A-07** *INVITED* Particle Simulations of the Active Injection of Electron Beams From Spacecraft: R M Winglee

**1530 h SP22A-08** Reforming Quasi-Parallel Shocks: D Winske, V A Thomas, N Omidi, K B Quest

**1545 h SP22A-09** Simulations of the Nonlinear Evolution of Electron Plasma Waves: K I Nishikawa

**1600 h SP22A-10** *INVITED* High-Resolution Simulation of the Solar Wind-Magnetosphere Interaction and Tail Reconnection: T Sato, K Watanabe

**SP22B KNK: Fuyo A Tues 1330 h**  
**Ground, Balloon, and Rocket Observation of the Aurora I**

*Presiding:* T Hirasawa, National Inst. of Polar Res.

**1330 h SP22B-01** *INVITED* Balloon Observations of Auroral Precipitation and Substorms Near the Dayside Cusp: E A Bering, J R Theall, J R Benbrook, D L Matthews, T J Rosenberg

**1355 h SP22B-02** *INVITED* Conjugacy of Auroras and Their Related Phenomena Observed at Syowa-Iceland Conjugate Pairs: N Sato

**1420 h SP22B-03** Ionospheric Effects on the Conjugacy of Geomagnetic Variations in High Latitude: S Tsunomura, N Sato

**1435 h SP22B-04** Conjugate Ground-Based and Mid-point-Satellite Observations of ULF Waves: A Frey, N Sato, K Takahashi

**1450 h SP22B-05** Geomagnetic Conjugacy Inferred From Relation Between an Energetic Electron Precipitation Event and CNA Events: H Yamagishi, T Kojima, N Sato, T Yamagami, H Suzuki, H Murakami, Y Hirasima, H Fukunishi, M Kodama

**1505 h** **BREAK**

**1525 h SP22B-07** CNA Observations by a Multi-Beam Riometer at Ny-Alesund in the Polar Cap: M Nishino, Y Tanaka, T Oguti, A Egeland

**1540 h SP22B-08** Drift of Cosmic Noise Absorption Associated With Storm Sudden Commencement: T Kikuchi, H Yamagishi

**1555 h SP22B-09** Magnitude of Cosmic Noise Absorption (CNA) Over the Southern Polar Region at the Time of sc and sc Triggered Substorm: T Hirasawa

**1610 h SP22B-10** Comparison of Aurora and Auroral Absorption Image: H Yamagishi, T Kikuchi, Y Hakura

**T22A SFK: F Tues 1330 h**

**ODP Legs 124-131**

*Presiding:* K Tamaki, Tokyo Univ; B Taylor, Hawaii Inst. of Geophysics

**1330 h T22A-01** Ocean Drilling Program: Highlights of Scientific Drilling in the Western Pacific: P D Rabinowitz, L B Stokking, J F Allan, L E Garrison, A W Meyer, J G Baldauf

**1345 h T22A-02** Paleogene Rotation of the Celebes Sea—Orientation of the ODP Cores Utilizing the Secondary Magnetization: H Shibuya, D L Merrill, V Hsu

**1400 h T22A-03** *INVITED* Rifting of the Izu-Bonin Arc: B Taylor

**1415 h T22A-04** *INVITED* Volcanism Along Izu-Bonin Arc, Western Pacific: K Fujioka, A Nishimura, K Rodolfo, J Gill, M Koyama

**1430 h T22A-05** Paleomagnetism and Tectonic History of the Izu-Bonin Arc: M Koyama, S Umino, S Cisowski

**1445 h T22A-06** *INVITED* Rifting and Opening Process of the Japan Sea Derived From ODP Leg 127 Drilling Results: K Tamaki, K Pisciotto

**1500 h** **BREAK**

**1515 h T22A-08** History of Japan Sea: Preliminary Interpretation of the Sedimentary Record From Leg 127: R Tada

**1530 h T22A-09** *INVITED* Back-Arc Subsidence and the Sedimentary and Paleo-Oceanographic Evolution of the Japan Sea: Evidence From ODP Drilling and Onshore Sequences in Japan, Korea, and the U.S.S.R.: J C Ingle, K Pisciotto

**1545 h T22A-10** Electrical Resistivity Experiment in the Japan Sea: Y Hamano, H Utada, J Oubina, K Becker

**1600 h T22A-11** Structure, Physical Properties, Fluids in the Nankai Trough Accretionary Prism—Results of Site Survey and ODP Leg 131: A Taira, I Hill, J Firth

**1615 h T22A-12** ODP Nankai Downhole Observatory (ONDO) Experiment During ODP Leg 131: H Fujimoto, H Kinoshita, M Yamano, T Kanazawa, H Ishizaki, H Murakami, H Matsuoka, A Taira

**1630 h T22A-13** Future ODP Cruises in the Pacific: An Overview of Legs 133 to 144: J F Allan, L B Stokking, P D Rabinowitz, L E Garrison, A W Meyer, J G Baldauf

**V22A SFK: Large Hall Tues 1330 h**  
**Island Arc Volcanism and Upper Mantle Processes (joint with S)**

*Presiding:* E Takahashi, Tokyo Inst. of Tech; D McKenzie, Bullard Labs

**1330 h V22A-01** *INVITED* A Model for Deep Magmatic Processes Beneath Island Arc Volcano: Experimental and Numerical Constraints: E Takahashi, A Tomiya

**1350 h** ~~V22A-02~~ ~~WITHDRAWN~~ The Fabric of Late Cenozoic Volcanoes: Mount Rainier to Mount

~~WEAVER~~ Tectonics and Subduction Zone Considerations: C S Weaver, M Guffanti

**1410 h V22A-03** *INVITED* Quaternary Volcanism and Regional Tectonic Stress Field in Japanese Islands: M Takahashi

- 1430 h V22A-04** Geochemical Characteristics of the Quaternary Volcanic Rocks of Central Japan: T Kaneko  
**1445 h V22A-05** An Isotopic Model for Island Arc Magma Genesis: H Yokose  
**1500 h V22A-06 INVITED** A Dominant Mantle Wedge Source for arc Magmas in the Izu-Honshu Transect: R J Arculus, I Kushiro

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**1515 h** **BREAK**

- 1530 h V22A-08 INVITED** Role of the Subducted Lithosphere in Arc-Magma Genesis I. Contribution From Phase Petrology and Trace Element Geochemistry: Y Tatsumi, M Murasaki, S Nohda  
**1550 h V22A-09** Role of the Subducted Lithosphere in Arc-Magma Genesis II. Contribution From Isotope Geochemistry: S Nohda, M Murasaki, Y Tatsumi  
**1605 h V22A-10** Heavy Alkali Metals of Japanese Volcanics: K Okamoto  
**1620 h V22A-11** Cenozoic Volcanism Related to Mantle Plume in SW Japan: H Iwamori  
**1635 h V22A-12** Mantle Diapir in the Subduction Zone Estimated From Calc-Alkalic Andesite: Y Tamura  
**1650 h V22A-13** Pargasitic Amphibole-Dehydration Solidus of Peridotites Hydrated in Subduction Wedge Mantle: K Niida, D H Green  
**1705 h V22A-14 INVITED** Melt Distribution in the Mantle from Rare Earth Element Concentrations: D McKenzie, K O'Nions

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**V22B SFK: Middle Hall Tues 1330 h**  
**Active Back Arcs I: Japan Sea (joint with G,T)**  
*Presiding: Y Otofuji, Kobe Univ*

- 1330 h V22B-01** Fast Drifting of Southwest Japan Inferred From Paleomagnetism and K-Ar Dating: Y Otofuji, T Itaya, T Matsuda  
**1345 h V22B-02** Timing of Rotational Motion of Southwest and Northeast Japan: Paleomagnetic Data From Miocene Sediments: A Hayashida  
**1400 h V22B-03** Paleomagnetism and Fission-Track Ages From the Tsushima Strait Area: Implications for the Japan Sea Opening: N Ishikawa, T Tagami  
**1415 h V22B-04** Opening of Japan Sea by a Hot Region Magmatism: Geochemical and Sr-Nd Isotopic Evidence: O Ujike  
**1430 h V22B-05** Presence of Primary High-Al Basalt Magma Associated With Rifting of the Japan Sea?: Results of ODP Leg 127: S Yamashita, T Fujii  
**1445 h V22B-06** Accelerated Intra-Arc Rifting in Miocene NE Japan: Manifestation of Stretching Instability of the Lithosphere: A Yamaji, T Takeshita

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**1500 h** **BREAK**

- 1515 h V22B-08 INVITED** The Petrogenetic Response of a Continental Volcanic Arc to Rifting: Diverse Volcanism in the Colima Rift, Mexican Volcanic Belt: J F Allan  
**1535 h V22B-09** Volcanism and Structures of the Chapala Graben: Relationship with a Rifting Process in Western Mexico: H Delgado  
**1550 h V22B-10** Geochemistry of Mafic Dykes in an Early Palaeozoic Marginal Basin From Southeast Australia: S F Liu, P D Fleming  
**1605 h**

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**Wednesday A.M.**

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**Paper Numbers.** A paper number designates the section, or other sponsoring group, and chronology of the presentation. **Sample T31A-01.**

Section	Day	Time	Ses-	Sequence
			sion	in Session
T	2 = Tues.	1 = AM	A	01
	3 = Wed.	2 = PM	B	
	4 = Thur.		C	
	5 = Fri.		D	
	6 = Sat.			

Thus, **T31A-01 = Tectonophysics, Wednesday, AM, concurrent session A, first paper in that session.**

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**U31A SFK: F Wed 0830 h**

**Fifty Years of Helium 3 Geophysics I**  
*Presiding: H Craig, Scripps Inst. of Oceanogr.; Y Horibe, Tokai Univ*

- 0830 h INTRODUCTION:** Y Horibe, Tokai University  
**0835 h U31A-01 INVITED** Thirty Years Crustal and Twenty Primordial: Fifty Years of  $^3\text{He}$  Geophysics: H Craig  
**0915 h U31A-02 INVITED** Noble Gases in Diamonds and Their Implications on Earth Evolution: M Ozima, S Zashu  
**0950 h U31A-03** Sorting out the Helium Isotopes in Diamonds: Primordial, Cosmogenic, and Implanted Components: D Lal, H Craig

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**1000 h** **BREAK**

- 1020 h U31A-05 INVITED** Juvenile Helium in Ancient Rocks: I N Tolstikhin, I L Kamensky, V S Dokuchaeva, V R Vetrin  
**1100 h U31A-06 INVITED** Tritiogenic  $^3\text{He}$  in Groundwater: Applications to Hydrology: N Takaoka, Y Mizutani  
**1135 h U31A-07** Diffusion of Cosmogenic  $^3\text{He}$  in Olivine and Quartz: Implications for Exposure Dating: T W Trull, M D Kurz, W J Jenkins

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**A31A KNK: Horai Wed 0830 h**

**Typhoons and Tropical Meteorology**  
*Presiding: M Yamasaki, Meteorological Res. Inst.; T N Krishnamurti, Florida State Univ, Tallahassee*

- 0830 h A31A-01 INVITED** Prediction of Supertyphoons With High Resolution Models: T N Krishnamurti  
**0855 h A31A-02 INVITED** Numerical Simulation of the Tropical Cyclone Formation: Y Kurihara, R E Tuleya  
**0920 h A31A-03** Wind Disturbances Associated With a Typhoon Observed by the MU Radar: K Sato  
**0935 h A31A-04** Radar Observation of Cloud Clusters in the Western Tropical Pacific by Keifu-Maru, June, 1989: K Mori, K Yamada

**DISCUSSION**

**0950 h A31A-05** Interannual Change of the Activity of the 30-60 Day Variation in the Tropics: N Nishi  
**1005 h A31A-06** Wave-CISK Mode With a Slow Phase Speed Appearing in a High-Resolution GCM and the Tropical Intraseasonal Oscillation: H Itoh

**A31B KNK: Horai Wed 1045h**  
**Coupled Ocean-Land-Atmosphere Interaction**  
(joint with O)

**Presiding:** T Yasunari, Univ of Tsukuba; E W Chiou, NASA, Langley Res. Center

**1045 h A31B-01** A Trans-Pacific Network of Wind Profilers—Progress and Plans: K S Gage, B B Balsley, W L Ecklund, R F Woodman, S Avery, J Soegijo

**1100 h A31B-02** Numerical Simulation of Orographic-Convective Rainfall Over Western Ghat Mountains Using a Limited Area Nested Grid Model: K Alapati, S Raman, R R V Madala

**1115 h A31B-03** Influence of the Sea Surface Temperature Distribution on the Regional Scale Circulation Over the Northwestern Pacific Area: K Rikiishi, Y Sasaki, H Iida

**1130 h A31B-04** Effects of Solar Activity and the Earth's Pole Tide to Annual Mean Sea Level and Tree-Ring Growth Rate in Subarctic Zone: S Nakamura

**1145 h A31B-05** Determining Large Scale Land Surface Processes for Climatic Models: B J Tsuang, J A Dracup

**GP31A SKC: 21 Wed 0830 h**

**Sedimentary Magnetism II**

**Presiding:** R H Karlin, Univ of Nevada, Reno; M Torii, Kyoto Univ

**0830 h GP31A-01** ABIC Analysis of Pass-Through Magnetometer Data of Sediment Cores: H Oda, H Shibuya

**0845 h GP31A-02** INVITED High Resolution Geomagnetic Record in the Sedimentary Sequence in Boso Peninsula, Central Japan: N Niitsuma

**0910 h GP31A-03** Magnetic Properties of Pleistocene Marine Sediments From the Boso Peninsula, Central Japan: M Torii, H Oda, J E T Channell

**0925 h GP31A-04** Stalagmite (One of Speleothems) Magnetization and a Geomagnetic Reversal Record: H Morinaga, H Inokuchi, K Yaskawa

**0940 h GP31A-05** Paleomagnetic Study of Unconsolidated Sediments From Beppu Bay in Kyushu, Japan: M Ohno, Y Hamano, M Okamura, K Shimazaki

**0955 h GP31A-06** Paleomagnetic Results of Lake Sediments From Central Mexico: B Ortega-Guerrero

**1010 h BREAK**

**1025 h GP31A-08** Spatial Dependence of the Declination and Inclination Inferred From a Model of Geomagnetic Secular Variation: Y Honkura, M Matsushima

**1040 h GP31A-09** Separation of Clockwise and Counter-Clockwise Rotations of the Geomagnetic Vectors From Paleosecular Variation in Japan: C Itota, M Hyodo, K Yaskawa

**1055 h GP31A-10** Paleosecular Variation for the Last 250 ka in Rapidly Deposited Marine Sediments at DSDP Site 480 in the Gulf of California: R Karlin, S Levi

**1110 h GP31A-11** A Long-Term Geomagnetic Excursion Obtained From the Plio-Pleistocene Sediments in Java: M Hyodo, W Sunata

**1125 h GP31A-12** INVITED Short Events and Long Intervals: Magnetostratigraphic Challenges: W Lowrie

**1150 h GP31A-13** Lower Cretaceous Magnetostratigraphy From Italian Land Sections—Correlations to Nannofossil Biostratigraphy and to the Western Pacific Oceanic Anomaly Record: J E T Channell, E Erba, K Tamaki, M Nakanishi

**H31A KNK: Fuyo B Wed 0830 h**  
**Water and Solute Transport in the Unsaturated Zone I**

**Presiding:** M T van Genuchten, U.S. Salinity Lab; T Miyazaki, Univ of Tokyo

**0830 h H31A-01** Water Path Flow Through the Unsaturated Glass-Bead Layer: Y Sakamoto

**0845 h H31A-02** Refraction, Fingering and Lateral Flow of Water in Layered Slopes: T Miyazaki

**0900 h H31A-03** On the Role of Characteristic Hysteresis in Vadose Soil Transport Dynamics: R E Smith, W E Niccoli

**0915 h H31A-04** The Transmission Model: An Analytical Model of Unsaturated Downward Soil Water Flow: S Shiozawa

**0930 h H31A-05** Ternary Heterovalent Cation Exchange During Unsteady, Unsaturated Soil Water Flow: W J Bond

**0945 h H31A-06** Transport of Exchanging Na<sup>+</sup> and Ca<sup>2+</sup> During Evaporation From Ca-Bentonite: N Toride, K Kato, M Nakano

**1000 h H31A-07** Nonequilibrium Models for Pesticide Transport and Degradation in Soils: M T van Genuchten, A P Gamedainger, R J Wagenet

**1015 h BREAK**

**1030 h H31A-09** INVITED Characteristics of Solute Transport Under Unsaturated Conditions: S Iwata, M Ishiguro

**1055 h H31A-10** INVITED Field Investigation of Trichloroethylene Vapour Transport in the Unsaturated Zone: R W Gillham, B M Hughes, C A Mendoza

**1120 h H31A-11** INVITED Interrelation Between Soil-water Chemistry and Element Cycle in a Forest Ecosystem: K Muraoka, T Hirata

**O31A KNK: Aioi Wed 0830 h**  
**Effect of Marginal Seas on West Pacific Water Masses I**

**Presiding:** Y Hsueh, Florida State Univ; K Kim, Seoul National Univ

**0830 h O31A-01** Periodic Intrusion of Warm Water Mass Into the Bungo Channel: H Takeoka, H Akiyama, T Kikuchi

**0850 h O31A-02** The Kuroshio Intrusion Into the East China Sea: Y Hsueh

**0910 h O31A-03** INVITED The Relationship Between Currents and Winds Northeast of Taiwan: W S Chuang

**0940 h O31A-04** On the Driving Mechanism of the Shelf Circulation Southeast of China: P T Shaw

1000 h	BREAK
<b>1020 h O31A-06</b> Role of Internal Tides in the Water Mass Exchange Between the Kuroshio and the Coastal Water of the East China Sea: T Matsuno	
<b>1040 h O31A-07</b> <i>INVITED</i> Kuroshio-Induced Circulation in the South China Sea and the East China Sea: J L Su	
<b>1110 h O31A-08</b> Circulation of the East China Sea, II: The Monsoon: S Y Chao	
<b>1130 h O31A-09</b> Interdisciplinary Study of the Tidal Front in the Bungo Channel: T Yanagi	

**P31A SKC: 32.33 Wed 0830 h**

### Physics of Outer Planets

*Presiding:* J Boyce, NASA Headquarters

**0830 h P31A-01** Coherent Signal Arraying of Voyager/Neptune Radio Science Data Received at Three Stations: E Mizuno, N Kawashima, P A Rosen, D P Hinson, G L Tyler

**0845 h P31A-02** Surface Topography on Triton Inferred From Limb Diffraction of Voyager Radio Occultation Signals: P A Rosen, E A Marouf

**0900 h P31A-03** The Ionosphere of Neptune: H Shinagawa, J H Waite

**0915 h P31A-04** *INVITED* Neptune's Atmosphere as Seen by Voyager 2: R F Beebe

**0940 h P31A-05** *INVITED* Voyager 2 Results on Neptune's Rings: C C Porco

**1005 h BREAK**

**1020 h P31A-07** *INVITED* Voyager 2 Results at Neptune: Triton and the Satellite System: R G Strom

**1045 h P31A-08** *INVITED* The Structure and Composition of Triton's Atmosphere: R V Yelle

**1110 h P31A-09** A Despin Mechanism for A Proto-Giant Planet by Magnetic Torque: T Takata, D J Stevenson

**1125 h P31A-10** Evolution of Titan—Early Thermal History and Atmosphere Formation: K Kuramoto, T Matsui

**1140 h P31A-11** A Model on Eccentric Tilted Dipole of the Planetary Magnetism: T Saito, Y Kozuka, S I Akasofu

**S31A SKC: Large Hall Wed 0930 h**

### Physics of Earthquakes and Recent Earthquakes II (joint with G,T)

*Presiding:* F Tajima, Univ of Texas, Austin

**0930 h S31A-01** Positive Feedback Fracture Process Induced by Non-Uniform High-Pressure Water Flow in Dilatant Granite: K Masuda, O Nishizawa, K Kusunose, T Satoh, M Takahashi, R L Kranz

**0945 h S31A-02** A Self Exciting Process of Acoustic Emission Occurrence During Steady Creep of Granite: O Nishizawa, H Noro

**1000 h S31A-03** A Preliminary Experimental Study of Aftershocks: Observation of the Acoustic Emission After Turning Out Gas Stove and Electric Cooking-Pot: H Ogasawara

**1015 h S31A-04** Characteristics of Foreshock and Aftershock Activities of Adjacent Large Earthquakes Around Japan: N Yamakawa, M Takahashi

**1030 h BREAK**

**1045 h S31A-06** Properties of Aftershock Sequences in Southern California: C Kisslinger, L M Jones

**1100 h S31A-07** Spectral Characteristics of Aftershocks of the 1989 Loma Prieta Earthquake: F Tajima, M K Sen

**1115 h S31A-08** Greek Seismic Migration Explained by Initial Fault Break and CMT Epicenters Distribution: V Arvanitopoulos, N Fujii

**1130 h S31A-09** Migration of Large Earthquakes Along San Andreas Fault: T Terashima

**1145 h S31A-10** Mathematical Modeling of the Earthquake Strain Field: T Ouchi

**SP31A KNK: Kaga Wed 0900 h**

### Computer Experiments of Geospace Plasmas II

*Presiding:* D Winske, Los Alamos National Lab

**0900 h SP31A-01** *INVITED* Recent Progress in Simulating Turbulence in Compressible and Incompressible Magnetofluids: M L Goldstein, S Ghosh, D A Roberts, W H Matthaeus, W T Stribling

**0925 h SP31A-02** Computer Experiments on Nonlinear Plasma Wave Excitation by Microwave Energy Beam: H Matsumoto, H Hirata, Y Hashino

**0940 h SP31A-03** *INVITED* Computer Simulations of VLF Triggered Emissions: Y Omura, H Matsumoto

**1005 h SP31A-04** Numerical Simulations of an Active Space Experiment in Three Dimensions: H Okuda

**1020 h BREAK**

**1035 h SP31A-06** Properties of Nonlinear Steepened Waves and Whistler Wave Packets: 1-D Computer Experiments: H Kojima, Y Omura, H Matsumoto, B T Tsurutani

**1050 h SP31A-07** Cyclotron Subharmonic Resonance Between Ions and Obliquely Propagating Magnetosonic Waves: T Terasawa, M Nambu, T Hada

**1105 h SP31A-08** A Simulation Study of the Solar Wind Including the Solar Rotation Effect: H Washimi, T Sakurai

**1120 h SP31A-09** *INVITED* Global Magnetohydrodynamic Simulation of the Wind and Magnetosphere Interaction: T Ogino, R J Walker, M Ashour-Abdalla

**1145 h SP31A-10** A Global Magnetohydrodynamic Simulation of the Dayside Magnetopause and Convection: R J Walker, T Ogino, M Ashour-Abdalla

**SP31B KNK: Fuyo A Wed 0900 h**

### Ground, Balloon, and Rocket Observation of the Aurora II

*Presiding:* E A Bering, Univ of Houston

**0900 h SP31B-01** Where and How Does an Initial Brightening of Auroral Breakup Start?: T Yamamoto

**0915 h SP31B-02** Two Different Arcs Near the Polar Cap Region: K Makita

- 0930 h SP31B-03** A Quantitative Comparison of Imaging Riometer and All-Sky Camera Measurements at South Pole Station, Antarctica: **F T Berkey, T J Rosenberg, Q Wu, H Miyaoka**
- 0945 h SP31B-04** Pulsating Auroral Activity and Energetic Electron Injections: **R Nakamura, T Yamamoto, S Kokubun, T Oguti, D N Baker**
- 1000 h SP31B-05** Tether Observations of Auroral Electric Fields: **S Watanabe, B A Wahnen, F Creutzberg, H G James**
- 1015 h SP31B-06** Analysis of Auroral Dynamics by Automatic Retrieval System for Auroral Data (ARSAD): **T Hirasawa, T Ono**

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- 1030 h** **BREAK**
- 1105 h SP31B-08** Auroral Substorm Observed at  $L = 1.56$  During the Great Magnetic Storm of October 1989: **K Yumoto, Y Tanaka, H Miyaoka, T Hirasawa, K Takahashi, R D Belian**
- 1120 h SP31B-09** Spectral Characteristics of Low Latitude Aurora on October 21, 1989: **T Takahashi, B Saito, Y Kiyama**
- 1135 h SP31B-10** Ionospheric Disturbance Features Associated With Low-Latitude Aurora Observed in Northern Japan on October 21 and November 17, 1989: **K Igarashi, A Otani, K Nishimuta, S Kainuma, T Maruyama, H Minakoshi, T Ogawa**
- 1150 h SP31B-11** Optical Characteristics and a Model of Low Latitude Aurora on October 21, 1989: **B Saito, Y Kiyama, T Takahashi**

**SP31C KKK: Large Assembly Wed 0830 h**  
**Aeronomy POSTERS (joint with A)**  
**Presiding: K I Oyama, Inst. of Space and Astronaut. Sci.**

- 0830 h SP31C-01** POSTER Morphology of the Mid-Latitude Field-Aligned Irregularities Observed by the MU Radar: **S Fukao, M D Kelley, T Takami, M Yamamoto, T Tsuda, S Kato**
- 0830 h SP31C-02** POSTER Seasonal Behavior of the Mid-Latitude Ionospheric F-Region Observed by the MU Radar: **S Fukao, W L Oliver, T Takami, M Yamamoto, T Tsuda, S Kato**
- 0830 h SP31C-03** POSTER Mid-Latitude E-Region Field-Aligned Irregularities Observed With the MU Radar: **M Yamamoto, S Fukao, T Tsuda, S Kato, T Ogawa**
- 0830 h SP31C-04** POSTER Dependence of Mid-Latitude Ionospheric Scintillation on Solar Activity: **H Minakoshi, H Mitsudome**
- 0830 h SP31C-05** POSTER Ionospheric Disturbances at Mid-Latitudes Observed With the MU Radar: **T Takami, S Fukao, S Kato, T Tsuda, M Yamamoto, T Nakamura, T Sato**
- 0830 h SP31C-06** POSTER Detailed Structure of the Large Scale Equatorial Plasma Bubbles and Blobs Observed by Hinotori-Satellite: **T Takahashi, H Oya**
- 0830 h SP31C-07** POSTER Total Electron Content Measurements Using GPS and VLBI: **T Kondo, M Imae, J Amagai, A Kaneko, S Matsuzaka, M Tobita**
- 0830 h SP31C-08** POSTER Nonthermal Electrons in the Focus of Sq Current Vortex: **K I Oyama**

**0830 h SP31C-09** POSTER Development of Fabry Perot Doppler Imaging System for Observation of the Thermospheric Dynamics: **S Okano, H Nakajima, K Shiokawa, H Fukunishi, T Ono**

**0830 h SP31C-10** POSTER Horizontal Velocities of Thermospheric Wind Observed With an HF Doppler Array: **Y Yoshimura, T Shibata, T Okuzawa, M Tsutsui**

**0830 h SP31C-11** POSTER Temperature and Humidity in the Formation of the Mesospheric Proton Hydrates: **T Sugiyama, Y Muraoka**

**0830 h SP31C-12** POSTER Mapping of Intensity in the Ionosphere for Signals Excited by a Ground Based VLF Transmitter: **Y Kitagishi, S Yagitani, I Nagano, M Mambo, I Kimura**

**0830 h SP31C-13** POSTER An Estimation Method of Electron Density Profile in the Lower Ionosphere From a Knowledge of VLF Ground Observation Data: **M Mambo, T Saitoh, I Nagano**

**0830 h SP31C-14** POSTER Transmission of Power Line Radiation Into Ionosphere: **I Tomizawa, H Tagashira**

**V31A SFK: Large Hall Magma Dynamics and Eruptive Processes (joint with S) Wed 0830 h**

**Presiding: T Koyaguchi, Kumamoto Univ; A Rice, Univ of Colorado**

**0830 h V31A-01** Conditions of the Upper Mantle Magma Segregation—Surface Energy Control Regime: **N Fujii, T Nakano**

**0845 h V31A-02** Deformation of Partially Molten Material—An Experimental Approach to Melt-Segregation Process: **T Watanabe, M Kumazawa, K Kurita**

**0900 h V31A-03** Variation of Magma Transport With Time by Propagation System of Liquid-Filled Cracks: **A Takada**

**0915 h V31A-04** INVITED Magma Mixing During Magma Ascent: **T Koyaguchi, S Blake**

**0935 h V31A-05** Application of the WLF-Equation to the Viscous Behavior of Diopside-Anorthite Melt: **H Taniguchi**

**0950 h V31A-06** Pahoehoe Versus Aa Lavas: Difference in Heterogeneous Nucleation—An Example From Izu-Oshima Volcano, Japan: **H Sato**

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**1005 h** **BREAK**

**1020 h V31A-08** Magma Flow Directions Inferred From Preferred Orientations of Phenocrysts: A Composite Feeder Dike of Miyake-Jima Island, Japan: **Y Wada**

**1035 h V31A-09** Liquid Immiscibility in a Calc-Alkaline Magma Chamber, the Hoei Tephra, Fuji Volcano, Japan: **T Kawamoto**

**1050 h V31A-10** Crystal Settling in Convecting Magmas: **T Koyaguchi, M A Hallworth, H E Huppert, D Martin**

**1105 h V31A-11** Fractal Structure of Heterogeneous Ejecta Produced by Mixing in Volcanic Conduit of Me-Akan Volcano, Eastern Hokkaido, Japan: **K Wada**

**1120 h V31A-12** INVITED Modeling of Vesiculation Process in Ascending Magmas: A Toramaru

**1140 h V31A-13** INVITED Recent Objections to Suggestions of High Over-Pressures in Volcanic Explosion: Their Flaws: **A Rice**

**V31B** SFK: Middle Hall **Wed 0830 h**  
Active Back Arcs II: Okinawa Trough (joint with G,T)

**Presiding:** J Erzinger, Univ of Giesen; H Kinoshita, Chiba Univ

**0830 h** V31B-01 Continental Rifting Trending Perpendicular to the Ryukyu Arc-Okinawa Trough Systems; Tectonics of the Kerama Gap: M Furukawa, K Tsuji, N Isezaki

**0845 h** V31B-02 Formation Process of the Ryukyu Arc and the Okinawa Trough: Paleomagnetic and Geochronological Evidence: M Miki, T Matsuda, Y Otofuji

**0900 h** V31B-03 The Electrical High Conductivity Layer Beneath the Northern Extension of the Okinawa Trough: S Handa, A Suzuki, Y Tanaka

**0915 h** V31B-04 Evolution of the Okinawa Backarc Rift System: H Kinoshita

**0930 h** V31B-05 Heat Flow Anomaly Around a Hydrothermal Field in the Izena Hole, Middle Okinawa Trough: M Kinoshita, M Yamano, E Kikawa, T Urabe, K Nakamura, Y Okuda

**0945 h** V31B-06 *INVITED* Chemistry of Hydrothermal Fluids in the Okinawa Trough: T Gamo, H Sakai, E S Kim, K Shitashima, F Yanagisawa, M Tsutsumi, J Ishibashi, Y Sano, H Wakita, M Yamano, T Tanaka, T Matsumoto, T Naganuma, K Mitsuzawa, T Oomori

**1000 h** V31B-07 Venting of CO<sub>2</sub>-Dominant Liquid and Gas Hydrate Formation at the Jade Hydrothermal Fields, Mid-Okinawa Trough Backarc Basin: H Sakai, T Gamo, E S Kim, M Tsutsumi, J Ishibashi, H Wakita, M Yamano, T Tanaka, T Oomori

**1015 h** V31B-08 Volatile Components of the Hydrothermal Fluids in the Mid-Okinawa Trough: J Ishibashi, Y Sano, H Wakita, T Gamo, M Tsutsumi, H Sakai

**1030 h** **BREAK**

**1045 h** V31B-10 *INVITED* Chemistry of Hydrothermal Vent Fluids From a Back Arc Spreading Ridge (Lau Basin): J Erzinger, J L Charlou

**1105 h** V31B-11 *INVITED* Tectonic, Magmatic and Hydrothermal Activity in the Western Woodlark Basin, Papua New Guinea: A Propagating Marginal Basin: R A Binns, S D Scott

**1125 h** WITHDRAWN Late Deformation in / Pichon, Jolivet, X Le

## Wednesday P.M.

**Paper Numbers.** A paper number designates the section, or other sponsoring group, and chronology of the presentation. Sample T32A-01.

Section	Day	Time	Ses-sion	Sequence in Session
T	2 = Tues.	1 = AM	A	01
	3 = Wed.	2 = PM	B	
	4 = Thur.		C	
	5 = Fri.		D	
	6 = Sat.			

Thus, T32A-01 = Tectonophysics, Wednesday, PM, concurrent session A, first paper in that session.

**U32A** SFK: F **Wed 1330 h**

### Fifty Years of Helium 3 Geophysics II

**Presiding:** H Craig, Scripps Inst. of Oceanogr.; Y Horibe, Tokai Univ

**1330 h** U32A-01 *INVITED* Re-Evaluation of He-Ar Isotope Systematics and Significance of He-Pb Isotope Systematics in the Earth's Interior: I Kaneoka

**1410 h** U32A-02 *INVITED* U-Th-Pb and He Isotopic Variations in Volcanic Rocks From the Hawaiian and Cook-Austral Chains: M Tatsumoto, Y Nakamura, A R Basu, H Craig

**1450 h** **BREAK**

**1510 h** U32A-04 *INVITED* Implications of Sr, Nd, Pb, and He Isotopes for Recycled Continental Crust in the Evolution of the Hawaiian Hot Spot: B E Faggart, A R Basu, M Tatsumoto, H Craig

**1540 h** U32A-05 *INVITED* Origin of Carbon and Helium in Volcanic Gases From Circum-Pacific Arcs: R J Poreda, H Craig

**1620 h** U32A-06 *INVITED* Helium and Carbon Isotopic Composition of Gas and Water Samples From Turkey: K Nagao, I Kita, J Matsuda, T Ercan

**1650 h** U32A-07 Helium Isotopes in Samoa: Still Coming of Age: K A Farley, H Craig, J Natland, J D Macdougall

**1330 h** U32A-08 *TITLE ONLY* Cosmogenic <sup>3</sup>He and the Ages of Geomorphologic Surfaces: T E Cerling, H Craig

**A32A** KNK: Horai **Wed 1330 h**

### Winds and Clouds

**Presiding:** N Murayama, Meteorological Satellite Center; G Nastrom, St. Cloud State Univ

**1330 h** A32A-01 The Christmas Island Wind Profiler: The First Four Years: K S Gage, J R McAfee, B B Balsley, W L Ecklund, D A Carter

**1345 h** A32A-02 Vertical Motions at Christmas Island: Implications for the Large-Scale Circulation: K S Gage, J R McAfee, D A Carter, G C Reid, B B Balsley

- 1400 h A32A-03** Diagnosis of a Downward Bias in the Vertical Motions Seen by VHF Clear-Air Doppler Radars: G D Nastrom, T E VanZandt, W L Clark, J M Warnock, J L Green, K S Gage
- 1415 h A32A-04** Speculations on the Origin of Circular Crop Damage: T Kikuchi, J T Snow, G T Meaden
- 1430 h A32A-05** Transport of the Dust Clouds Kosa From the East Asian Dust Storms to the Northwestern Pacific Area: N Murayama, T Satomura, H Sasaki, F Kimura
- 1600 h GP32A-11** Paleomagnetic Dating of Paleoearthquake: K Hirooka, H Sakai
- 1615 h GP32A-12** Tectonomagnetic Signals Associated With Earthquake Swarm and Crustal Uplift in the Izu Peninsula Since 1978: N Oshiman, Y Sasai
- 1630 h GP32A-13** Rock Magnetism of the Human Brain: J L Kirschvink, A Kobayashi-Kirschvink
- 1645 h GP32A-14** Arm Acquisition in Natural and Synthetic Samples: J Urrutia-Fucugauchi

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**1445 h** **BREAK**

- 1530 h A32A-07** Karman Vortex Generated by Breaking of Mountain Wave: Numerical Study: F Kimura, S Takahashi, N Murayama
- 1545 h A32A-08** A Numerical Study of Thermal Convection in a Rotating Annulus Fluid With High Prandtl Number: S Sugata, S Yoden
- 1600 h A32A-09** Characteristics of High-Cloud Distributions Over the Western Pacific Derived From SAGE II Occultation Measurements: E W Chou, M P McCormick, W P Chu, L R McMaster, G K Yue

**GP32A** **SKC: 21** **Wed 1330 h**  
**Paleomagnetism/Rock Magnetism**  
*Presiding: R G Gordon*, Northwestern Univ; **H Tanaka**, Tokyo Inst. of Tech

- 1330 h GP32A-01** Global Plate Motion Circuits and Motion Between Hotspots: A Paleomagnetic Test: G D Acton, **R G Gordon**
- 1345 h GP32A-02** Preliminary Results From Paleomagnetism on APW Path for Hubei, South China Block: Y Adachi, H Morinaga, Y Liu, G Fang, K Yaskawa
- 1400 h GP32A-03** New Miocene Paleomagnetic Results From Northern China and Reappraisal of Late Mesozoic Paleomagnetic Data of Siberia: X Zhao, Y Zhou, S Hu, Z Dong, J Wang
- 1415 h GP32A-04** Thermal History Deduced From 40Ar/39Ar Geothermometry and Paleomagnetism in the Grenville Province, Canada: Multiple Thermal Events at a Dike Contact: **H Hyodo**, D York, D J Dunlop
- 1430 h GP32A-05** Paleomagnetism of Early Cretaceous to **WITHDRAWN** Movement: K Kodama, I Takeuchi, I Uzawa
- 1445 h GP32A-06** The Utilization of Formation Microscanner (FMS) Logs to Obtain Azimuthal Orientations of Paleomagnetic Samples From Western Pacific ODP Cores: S M Cisowski, R Jarrard, M Koyama

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**1500 h** **BREAK**

- 1515 h GP32A-08** The Acambay Graben, Central Mexico, Paleomagnetic Study: A Soler-Arechalde, J Urrutia-Fucugauchi, J Santos-Santiago
- 1530 h GP32A-09** Paleointensity High at 9000 Years Ago Found From Volcanic Rocks in Japan: **H Tanaka**
- 1545 h GP32A-10** Some New Results of Study on the Changes in the Magnetic Moment of the Earth During the Last 5000 Years: J Y Zheng, C Tang, D J Li, S F Wei, Q Y Wei

- 1600 h GP32A-11** Paleomagnetic Dating of Paleoearthquake: K Hirooka, H Sakai
- 1615 h GP32A-12** Tectonomagnetic Signals Associated With Earthquake Swarm and Crustal Uplift in the Izu Peninsula Since 1978: N Oshiman, Y Sasai
- 1630 h GP32A-13** Rock Magnetism of the Human Brain: J L Kirschvink, A Kobayashi-Kirschvink
- 1645 h GP32A-14** Arm Acquisition in Natural and Synthetic Samples: J Urrutia-Fucugauchi

**H32A** **KNK: Fuyo B** **Wed 1330 h**  
**Water and Solute Transport in the Unsaturated Zone II**  
*Presiding: M T van Genuchten*, U.S. Salinity Lab; **T Miyazaki**, Univ of Tokyo

- 1330 h H32A-01** INVITED A Nonlocal Theory of Multiphase Transport: B Munhunthan, J H Cushman
- 1355 h H32A-02** INVITED The Use of Fractal Concepts to Estimate Soil Hydraulic Properties: S W Tyler, S W Wheatcraft
- 1420 h H32A-03** Occurrence of Zero Flux Plane in the Unsaturated Zones: Y Yamamura
- 1435 h H32A-04** Experimental Studies on Heat and Moisture Transfer in Saturated-Unsaturated Soil Zone: **H Horino**, T Morozumi, T Maruyama
- 1450 h H32A-05** Effects of a Time-Variation of Wind Speed and Short Wave Radiation on the Evaporation in Bare Land: Y Kuzuha, Y Ishihara, E Shimojima
- 1505 h H32A-06** Effect of Wind Turbulence on Evaporation From Bare Land: Y Ishihara, E Shimojima
- 1520 h H32A-07** A Complementary Relationship Between Actual Evapotranspiration and Pan Evaporation in a Small Area: **H Oue**, K Otsuki, T Maruyama

**O32A** **KNK: Aioi** **Wed 1330 h**  
**Effect of Marginal Seas on West Pacific Water Masses II**  
*Presiding: A Gordon*, LDGO; **J L Su**, Second Inst. of Oceanogr.

- 1330 h O32A-01** On Kuroshio Front Fluctuations in the East China Sea Using Satellite Images and in Situ Observational Data: B Qiu, T Toda, N Imasato
- 1350 h O32A-02** Water Exchange Processes Induced By Variations in the Kuroshio South of Japan: T Awaji, K Akitomo, N Imasato
- 1410 h O32A-03** Characteristics of Sea Surface Height Fields in the Southeastern and Western Pacific Seas by GEOSAT Altimeter: Y J Ro
- 1430 h O32A-04** INVITED Observations of Water Masses From Low and High Latitudes in the East Sea (Sea of Japan): **K Kim**, K R Kim

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**1500 h** **BREAK**

- 1520 h O32A-06** Sources of North Pacific Intermediate Water From the Sea of Japan and Sea of Okhotsk: S C Riser

<b>1540 h</b>	<b>O32A-07</b>	<i>INVITED</i> The Role of the Okhotsk Sea on the Formation of the Oyashio Water: K Ohtani, Y Nagata	<b>1430 h</b>	<b>S32A-05</b>	The Rupture Process of the 1946 Nankai Earthquake Derived From Strong Ground Motion Data: <b>K Irikura, T Iwata, J C Gariel</b>
<b>1610 h</b>	<b>O32A-08</b>	<i>INVITED</i> The Role of the Okhotsk and Japan Seas in Modifying Intermediate Waters in the North Pacific: L D Talley	<b>1445 h</b>	<b>BREAK</b>	
<b>1640 h</b>	<b>O32A-09</b>	The Exchange of Kuroshio and East China Sea Shelf Water: D P Wang, C S Chern, J Wang	<b>1500 h</b>	<b>S32A-07</b>	Variable Rupture Mode of Large Earthquakes in the Nankai Trough: <b>K Satake, H Kanamori</b>
<b>P32A</b>	<b>SKC: 32.33</b>	<b>Wed 1345 h</b>	<b>1515 h</b>	<b>S32A-08</b>	Rupture Process of Sanriku-Oki Earthquakes Occurring on October 29 and November 1, 1989: <b>Y Yoshida, M Takeo</b>
<b>Origin and Evolution of the Solar System I</b>			<b>1530 h</b>	<b>S32A-09</b>	Re-Examination of the Source Process of the 1976 Guatemala Earthquake: <b>M Kikuchi, H Kanamori</b>
<b>Presiding:</b> <b>H Mizutani</b> , Inst. of Space and Astronaut. Sci.			<b>1545 h</b>	<b>S32A-10</b>	Teleseismic Interpretation of the Earthquake Sources in Eastern Iran: <b>M R Gheitanchi, M Kikuchi, M Mizoue</b>
<b>1345 h</b>	<b>P32A-01</b>	Planetary Formation Through Non-Axisymmetric Gravitational Instabilities in a Dust Layer: Y Nakagawa, M Sekiya	<b>1600 h</b>	<b>S32A-11</b>	The High Acceleration Area and the Source Process of the 1989 Roma Prieta, California, Earthquake: <b>Y Umeda, M J Rymer</b>
<b>1400 h</b>	<b>P32A-02</b>	Collision and Tidal Interaction Between Planetary-Sized Objects: S I Watanabe, S M Miyama	<b>SP32A</b>	<b>KNK: Kaga</b>	<b>Wed 1330 h</b>
<b>1415 h</b>	<b>P32A-03</b>	Angular Momentum Transfer in Oblique Impacts: M Yanagisawa, J Eluszkiewicz, T J Ahrens	<b>Global Structures of MHD Waves I</b>		
<b>1430 h</b>	<b>P32A-04</b>	Phase Diagram and Equations of State of Methane and Water Under High Pressure and Temperature: T Yagi, H Suzuki	<b>Presiding:</b> <b>T Kitamura</b> , Kyushu Univ		
<b>1445 h</b>	<b>BREAK</b>		<b>1330 h</b>	<b>SP32A-01</b>	<i>INVITED</i> Kinetic Theory of Geomagnetic Pulsations I. Internal Excitations by Energetic Particles: L Chen, A Hasegawa
<b>1515 h</b>	<b>P32A-06</b>	Anomalous Nitrogen in Y74191 (L3) Chondrite: N Sugiura, K Hashizume	<b>1355 h</b>	<b>SP32A-02</b>	<i>INVITED</i> Global Dynamics of MHD Waves—Ground Multi-Station Network: K Hayashi
<b>1530 h</b>	<b>P32A-07</b>	Nitrogen Isotope Fractionation in Ordinary Chondrites: K Hashizume, N Sugiura	<b>1420 h</b>	<b>SP32A-03</b>	<i>INVITED</i> Global Mode Nature of Pi 2 Magnetic Pulsations: K Yumoto
<b>1545 h</b>	<b>P32A-08</b>	The Rb-Sr Internal Isochron Age of E3 Chondrite, Qingzhen and Yamato-6901: N Torigoe, M Shima	<b>1445 h</b>	<b>SP32A-04</b>	<i>INVITED</i> Distribution of Pc 3-5 Wave Energy in the Magnetosphere From AMPTE/OCE Observations: K Takahashi, B J Anderson
<b>1600 h</b>	<b>P32A-09</b>	<i>INVITED</i> Venus Lightning: C T Russell	<b>1510 h</b>	<b>BREAK</b>	
<b>1615 h</b>	<b>P32A-10</b>	A Two-Dimensional MHD Model of the Venus Ionosphere: H Shinagawa	<b>1530 h</b>	<b>SP32A-06</b>	<i>INVITED</i> Resonance and Non-Resonance Mechanism of MHD Waves in the Magnetosphere: Y Inoue
<b>1630 h</b>	<b>P32A-11</b>	Chemical Composition of Pyroxenes in Ordinary Chondrites as a Quantitative Parameter for "Metamorphism": T Noguchi	<b>SP32B</b>	<b>KNK: Fuyo A</b>	<b>Wed 1330 h</b>
<b>1645 h</b>	<b>P32A-12</b>	Noble Gas Ion Implantation Into Minerals: T Futagami, M Ozima, S Nagai, Y Aoki	<b>Cusp, Mantle, and Field-Aligned Currents</b>		
<b>S32A</b>	<b>SKC: Large Hall</b>	<b>Wed 1330 h</b>	<b>Presiding:</b> <b>T Tamao</b> , Univ of Tokyo		
<b>Physics of Earthquakes and Recent Earthquakes III</b>			<b>1330 h</b>	<b>SP32B-01</b>	Statistical Studies of Cusp-Region Magnetic Impulse Events and Interplanetary Conditions: A Wolfe, L J Lanzerotti, C G MacLennan, R M Konik, D Venkatesan
<i>(joint with G,T)</i>			<b>1345 h</b>	<b>SP32B-02</b>	Identification and Observations of the Plasma Mantle at Low Altitude: P T Newell, E R Sanchez, C I Meng, M E Greenspan, W Burke, F Rich
<b>Presiding:</b> <b>M Kikuchi</b> , Yokohama City Univ			<b>1400 h</b>	<b>SP32B-03</b>	Magnetosheath Turbulence and Flux Transfer Events: An Objection to the FTE Momentum Transport Model: T K Nakamura, S I Ohtani
<b>1330 h</b>	<b>S32A-01</b>	Seismic Spectrum of Ultra-Microearthquakes: Y Iio	<b>1415 h</b>	<b>SP32B-04</b>	Long-Term Dependence of Pc 3 Activity on Upstream Solar Wind Parameters: A Wolfe, K Yumoto
<b>1345 h</b>	<b>S32A-02</b>	Anomalously Deep Earthquakes Beneath the Volcanic Front of Northern Tohoku, Japan: M Kosuga, A Hasegawa	<b>1430 h</b>	<b>SP32B-05</b>	Linear Analysis of Ion Inertia Effect on Kelvin-Helmholtz Instability: M Fujimoto, A Nishida, T Terasawa
<b>1400 h</b>	<b>S32A-03</b>	The 1989, July 9 Ito-Oki Earthquake (M 5.5): Modeling of Strong Ground Motion: J C Gariel, K Irikura, K Kudo	<b>1445 h</b>	<b>SP32B-06</b>	Laboratory Dipole Tilt Effects on the Structure of the Magnetospheres: S Minami, Y Takeya
<b>1415 h</b>	<b>S32A-04</b>	Source Time Function of the Ito-Oki Earthquake on July 9, 1989 Deduced From Strong Motion Seismograms: M Takeo			

<b>1500 h</b>	<b>BREAK</b>	
1515 h SP32B-08 A Test of Magnetic Field Topology Based on Tsyganenko's Model of the Magnetosphere: N Nishitani, T Ogino, T Oguti		
1530 h SP32B-09 Correlation Between Magnetic and Electric Fields Perturbations Associated With Field-Aligned Currents: M Ishii, T Iyemori, M Sugiura, M C Maynard, J A Slavin		
1545 h SP32B-10 Field-Aligned Currents With a Cylindrical Structure in Dayside Region 1: S Taguchi, M Sugiura, T Iyemori, J A Slavin, T Araki		
		1330 h SP32D-10 <i>POSTER</i> Particle Loadings of Plasma Shear Layers in Magnetized Plasmas: D Cai, L R O Storey
		1330 h SP32D-11 <i>POSTER</i> Decay Process of Incoherent Alfvén Waves: H Umeki, T Terasawa
		1330 h SP32D-12 <i>POSTER</i> Computer Simulation Study of Ion Dynamics at Quasi-Parallel Shocks: T G Onsager, D Winske, M F Thomsen
		1330 h SP32D-13 <i>POSTER</i> Evolution of the Plasmoid and Accompanied Shocks Induced by a Sudden Reconnection Enhancement Within a Neutral Sheet: K Maezawa

**SP32C KNK: Fuyo A Wed 1600 h**

**Titan, Io, and Mars**

**Presiding:** T Tamao, Univ of Tokyo

- 1600 h SP32C-01 A Theoretical Model of the Ionosphere of Titan: C N Keller, T E Cravens, L Gan  
 1615 h SP32C-02 3D-Structure of HM-Waves Generated by a Moving Localized Conductor: Reconsideration of Io's Case: T Tamao, M Yamashita  
 1630 h SP32C-03 The Ionospheric Effects of a Weak Intrinsic Magnetic Field at Mars: H Shinagawa, T E Cravens

**SP32D KKK: Large Assembly Wed 1330 h**  
**Computer Experiments of Geospace Plasmas III-POSTERS**

**Presiding:** T G Onsager, Los Alamos National Lab

- 1330 h SP32D-01 *POSTER* Particle Simulations of Wave Propagation in a Nonuniform Plasma: S Yagitani, I Nagano, Y Omura, H Matsumoto  
 1330 h SP32D-02 *POSTER* Particle Simulations of Spacecraft-Plasma Interactions: M Okada, Y Omura, H Matsumoto  
 1330 h SP32D-03 *POSTER* Computer Experiments of Particle Beam Dynamics in a Nonuniform Plasma: H Furukawa, Y Omura, H Matsumoto  
 1330 h SP32D-04 *POSTER* Nonlinear Response of Magnetized Plasma to Large Amplitude Monochromatic EM Wave Radiated From a Current Sheet Antenna: H Yashiro, H Matsumoto  
 1330 h SP32D-05 *POSTER* Computer Experiments of Plasma Chaos: Y Usui, H Matsumoto  
 1330 h SP32D-06 *POSTER* Long Time Scale Simulations for Whistler Mode Wave-Particle Interaction in the Magnetosphere: T Nakayama, Y Omura, H Matsumoto  
 1330 h SP32D-07 *POSTER* Particle Simulations of Dia-magnetic Cavity Formation and Related Plasma Dynamics: M E Jones, D Winske, C Barnes, V A Thomas  
 1330 h SP32D-08 *POSTER* Simulation of Strong Alfvénic Turbulence: K Akimoto, D Winske  
 1330 h SP32D-09 *POSTER* Numerical Simulations of the Beam-Excited UHR Mode and Whistler Mode Waves and Comparison With the Results of the EXOS-D Observations: T Watanabe, H Oya

**V32A SFK: Large Hall Wed 1330 h**  
**Volcanic Seismology and Eruptive Precursors (joint with S)**

**Presiding:** M Mizoue, Univ of Tokyo; B A Chouet, USGS, Menlo Park

- 1330 h V32A-01 *INVITED* A Seismic Model For Forecasting Eruptions at Redoubt Volcano, Alaska: B A Chouet, J Power, J N Davies, T P Miller, R A Page, J C Lahr, T L Murray, D H Harlow, E T Endo, C D Stephens  
 1355 h V32A-02 *INVITED* Earthquake Swarms Accompanied by Magma Driven Propagation of Cracks: M Mizoue  
 1420 h V32A-03 A Model for Crustal Deformation Observed With Episodic Volcanic Tremors: J Oikawa, Y Ida  
 1435 h V32A-04 BL-Type Earthquakes Observed at Asama Volcano, Central Japan: M Sawada  
 1450 h V32A-05 Source Mechanism of Volcanic Earthquakes Related to Volcanic Activity at Volcano Aso, Japan: T Wada, H Ono  
 1505 h V32A-06 Observation of Volcanic Micro-Tremors at the Aso Volcano in 1989: Y Sudo

**1520 h** **BREAK**

- 1535 h V32A-08 Long Period Microearthquakes Occurring Near the Moho Boundary Beneath Tokachi-Dake Volcano, Hokkaido: S Suzuki, M Kasahara  
 1550 h V32A-09 *INVITED* Low-Frequency Microearthquakes Occurring at the Bottom of the Crust or in the Uppermost Mantle Beneath Active Volcanoes in North-Eastern Japan: A Yamamoto, A Hasagawa  
 1610 h V32A-10 *INVITED* Seismicity Related to Eruption at Kilauea Volcano, Hawaii, 1983-1989: R Y Koyanagi, J S Nakata  
 1630 h V32A-11 Geomagnetic Variations Associated With the 1989 Eruptions of Aso: Y Tanaka  
 1645 h V32A-12 Temporal Variation of Heat Discharge in Usu Volcano (From 1977 to 1987): N Matsushima, Y Nishida  
 1700 h V32A-13 Modeling of Hydrothermal Systems and Their Fluctuations due to Volcanic Activity in Some Volcanoes in Kyushu, Japan: K Ohta  
 1715 h V32A-14 Precursory Changes in Temperature of Fumarolic Gas Emitted From Izu-Oshima Volcano Associated With Submarine Eruption off the Eastern Coast of the Izu Peninsula: K Notsu, H Wakita, G Igarashi

**V32B** SFK: Middle Hall **Wed 1330 h**  
**Active Back Arcs III: Bonin Arc** (*joint with G,T*)  
**Presiding:** J Pearce, Univ of Durham; K Fujioka, Univ of Tokyo

- 1330 h **V32B-01** Varying Mantle Sources, Multi-Stage Melting and Ophiolite Generation: Inferences From the Zambales Ophiolite Complex (Philippines): G P Yumul  
1345 h **V32B-02** INVITED Geochemical Mapping of the Central Lau Backarc Basin, SW Pacific: J Pearce, M Ernewein, J Hergt, C Hawkesworth, D Mattey  
1405 h **WITHDRAWN** e of Some Submarine Basins: K E Aggrey,  
1420 h **V32B-04** Bimodal Arc Volcanism and Back-arc Rifting Along Izu-Bonin Arc: K Fujioka, A Nishimura, M Koyama, N Kotake  
1435 h **V32B-05** Heat Flow and Tectonics of the Izu-Ogasawara (Bonin)-Mariana Arc: T Yamazaki, F Murakami, M Yuasa  
1450 h **V32B-06** Localized Heat Flow Anomaly Around Japan Associated With Interstitial Water Circulation: M Kinoshita, M Yamano, S Uyeda

- 1505 h** **BREAK**  
1520 h **V32B-08** Formation Mechanism of Sulfates-Sulfides Chimney on the Seafloor: N Shikazono, A Imai, H Shimazaki, M Kusakabe  
1535 h **V32B-09** Conductivity Model Study of the Izu-Bonin Arc Based on the Seafloor Electromagnetic (EM) Observations: H Toh, J Segawa  
1550 h **V32B-10** High Resolution Measurement of Horizontal Electric Field at the Seafloor Using Long-Span Electrodes: J Segawa, H Toh  
1605 h **DISCUSSION**

## Thursday A.M.

**Paper Numbers.** A paper number designates the section, or other sponsoring group, and chronology of the presentation. Sample **T41A-01**.

Section	Day	Time	Ses-	Sequence in Session
T	2 = Tues.	1 = AM	A	<b>01</b>
	3 = Wed.	2 = PM	B	
	4 = Thur.		C	
	5 = Fri.		D	
	6 = Sat.			

Thus, **T41A-01** = Tectonophysics, Thursday, AM, concurrent session A, first paper in that session.

**GP41A** SKC: 21 **Thurs 0830 h**  
**Geomagnetism and Electromagnetic Induction**  
**Presiding:** C G A Harrison, RSMAS/Univ of Miami; N Isezaki, Kobe Univ

- 0830 h **GP41A-01** The U.S. Geomagnetic Field Satellite Program: J R Heirtzler, R A Langel, P T Taylor, W J Webster, C A Harrison  
0845 h **GP41A-02** Stochastic Inversion of Magnetic Observatory Annual Means: M G McLeod  
0900 h **GP41A-03** Distributions of Amplitude of Marine Magnetic Anomalies and Crustal Magnetizations in the Pacific, Atlantic, and Indian Oceans: K Sayanagi, K Tamaki  
0915 h **GP41A-04** Significantly Deflected Magnetic Fields Inside Fissure-Like Openings: Implications for Sea Floor Spreading Anomalies: C Baag, S Z Xu, C E Helsley  
0930 h **GP41A-05** The Thickness of the Marine Magnetic Source Layer Is Obtained From Vector Anomalies of Marine Magnetic Field: N Seama, N Isezaki  
0945 h **GP41A-06** Magnetic Properties of Gabbros From Ocean Drilling Program Hole 735B at the Southwest Indian Ridge: E Kikawa, J E Pariso  
1000 h **GP41A-07** Relation of Magnetic Anomalies to the Tanna Fault: Y Okubo

- 1015 h** **BREAK**  
1030 h **GP41A-09** Analysis on Structure of the Variable Geomagnetic Fields at Middle and Low Latitudes: W Y Xu, M L Zhang, Y F Ling, X P Zeng  
1045 h **GP41A-10** Simulation of the Electric Currents in the Ocean Induced by the Geomagnetic Sq Field: M Takeda  
1100 h **GP41A-11** Wide Band Magnetotelluric Transects Across Northeast Japan Arc With Special Reference to Geothermal Fields: Y Ogawa, S Takakura  
1115 h **GP41A-12** An Investigation of the Crustal Resistivity Structure Beneath Chugoku District in Southwest Honshu, Japan: I Shiozaki, J Miyakoshi, T Ichikita, K Yaskawa, Y Ogawa, N Sumitomo  
1130 h **GP41A-13** Magnetotelluric Modeling of the Shikoku District in Southwestern Japan: S Yamaguchi, I Shiozaki, A Okubo, T Ogawa, N Sumitomo, K Yaskawa

**1145 h GP41A-14** An Investigation of Conductivity Structure Beneath the Oki Islands in the Inner Zone of Southwestern Japan: **K Fujita, S Yamaguchi, K Kashihara, T Ichikita, H Nishioka, I Shiozaki, K Yaskawa**

**H41A KNK: Fuyo B Thurs 0830 h**  
**Surface Water Hydrology I**

**Presiding:** **K Takeuchi**, Yamanashi Univ; **D P Lettenmaier**, Univ of Washington

**0830 h H41A-01** Mechanism Controlling the Instability of Slopes Made of Granular Materials: **Y Onda, Y Matsukura**

**0845 h H41A-02** Mechanism of Suspended Sediment Supply in the Hiyamizusawa River, Hokkaido, Japan: **Y Kurashige**

**0900 h H41A-03** Surface Velocity Measurement by Radio Wave Current Meter: **F Yoshino, T Yamaguchi**

**0915 h H41A-04** The Halphen System of Distributions for Flood Frequency Analysis: **F Ashkar, B Bobee**

**0930 h H41A-05** Bayesian Relative Information as a Measure of Model Validity: **M E Moss**

**0945 h H41A-06** *INVITED* Areally-Integrated Land-Surface Evapotranspiration (ET): Controlling Processes Over Varying Space/Time Scales: **K S Humes, S Sorooshian**

**1010 h BREAK**

**1025 h H41A-08** Estimation of Evapotranspiration From Mountainous Watersheds Using the Complementary Method: **K Otsuki**

**1040 h H41A-09** *INVITED* A Modeling Framework for Real-Time Radar-Rainfall Estimation: **W F Krajewski, J A Smith**

**1105 h H41A-10** Field Observations of Precipitation in an Mountainous Basin and Its Characteristics: **T Yamada, T Mogi**

**1120 h H41A-11** A Distributed Rainfall-Runoff Model Using Radar-Measured Rainfall Data: **M Lu, T Koike, N Hayakawa**

**1135 h H41A-12** Experimental and Theoretical Studies on Small Scale Rainfall Rates: **K P Georgakakos, M B Sharifi**

**O41A KNK: Aioi Thurs 0830 h**

**Deep and Intermediate Water Circulation I**

**Presiding:** **K Taira**, Univ of Tokyo; **S Imawaki**, Kyoto Univ

**0830 h O41A-01** Behavior of the High Density Water Flowing Down Along a Shelf Slope: **Y Yamazaki, Y Nagata, R Kimura**

**0850 h O41A-02** *INVITED* Circulation of Antarctic Water Near the Dateline in the South Pacific: **S P Hayes, J Bullister, D Wisegarver, R Gammon**

**0920 h O41A-03** On a Study of the Subantarctic and Polar Fronts Past the Falkland Plateau: **T Matsuura, W D Nowlin, T Whitworth**

**0940 h O41A-04** *INVITED* The HELIOS Helium 3 Section: Implications for the Deep Water Circulation in the North and South Pacific: **H Craig**

**1010 h BREAK**

**1030 h O41A-06** Diagnostic Calculation for Circulation and Water Mass Movement in the Deep Pacific: **S Fujio, N Imasato**

**1050 h O41A-07** Flow of Abyssal Water Into the Samoa Passage: **B A Taft, S P Hayes, G E Friederich, L A Codispoti**

**1110 h O41A-08** Deep Water Characteristics and Circulation of the Western North Pacific Ocean: **H Sudo**

**1130 h O41A-09** *INVITED* Abyssal Waters of the Coral and Solomon Seas: **E J Lindstrom, S P Hayes**

**P41A SFK: F Thurs 0830 h**

**Origin and Evolution of the Solar System II**

**Presiding:** **H Mizutani**, Inst. of Space and Astronaut. Sci.

**0830 h P41A-01** Radial Structure of Kinetic Temperature in Gases Bound by a Gravitational Field: **R Shubert**

**0845 h P41A-02** Plate Boundary Structures on Venus: **J Raitala, T Tormanen**

**0900 h P41A-03** Gravity Coefficients of Outer Planet Satellites: **J K Campbell, J D Anderson**

**S41A SKC: Large Hall Thurs 0830 h**

**Dynamics and Structure of Plate Boundaries I**  
(joint with T)

**Presiding:** **M Ishida**, Nat'l Res. Ctr. for Disaster Prevention

**0830 h S41A-01** Tomographic Determination of the Velocity Structure in and Around the NE Japan: **D P Zhao, S Horiuchi, A Hasegawa**

**0845 h S41A-02** Three-Dimensional Seismic Velocity Structure in Northern Tohoku Region, Honshu, Japan: **N T Puspito, T Sato, K Tanaka**

**0900 h S41A-03** Three-Dimensional P and S Wave Velocity Structures in the Kanto-Tokai District, Japan: **M Ishida, A Hasemi**

**0915 h S41A-04** Use of P and pP Phase Data for Relocation of ISC Hypocenters and for 3D Imaging of Subduction Zones Below Japan: **R D Van der Hilst, W Spakman, E R Engdahl**

**0930 h S41A-05** Fingering and Lower Mantle Penetration of the Kurile Slab: **Y Yamanaka, T Miyatake, K Hirahara**

**0945 h S41A-06** Corrections for Receiver Structure in Teleseismic Travel Time Inversion: 3-D P-Wave Velocity Structure of the New Hebrides: **H Taniyama, K Shimazaki, K Hirahara**

**1000 h** **WITHDRAWN** of Deep Slabs:  
Deflect **D Giardini**, **P Lundgren**,

<b>1015 h</b>	<b>BREAK</b>	
<b>1030 h</b> <b>S41A-09</b> Systematics of Focal Mechanisms in Wadati-Benioff Zones Along the Ryukyu-Kyushu and the Kurile-Kamchatka Arcs: A Comparative Study: M A Glennon, H Kao, W P Chen		<b>1200 h</b> <b>S41B-13</b> Regional Difference in Maximum Velocity Amplitude Decay With Distance in the Kanto-Tokai District, Central Japan: S Noguchi
<b>1045 h</b> <b>S41A-10</b> Thickness of the Low Velocity Layer in the Descending Oceanic Plate Estimated by Later Phases Observed in the Records of off-Fukushima-Earthquakes: S Mori		
<b>1100 h</b> <b>S41A-11</b> Effects of the Distortion of the Olivine-Spinel Phase Boundary in the Subducting Slab on Body-Wave Amplitudes: T Iidaka, D Suetsugu		<b>SP41A</b> <b>KNK: Kaga</b> <b>Thurs 0900 h</b> <b>Solar, Interplanetary Physics and Magnetic Storms</b> <b>Presiding:</b> K Marubashi, Hiraiso Solar Terr. Res. Center
<b>1115 h</b> <b>S41A-12</b> Elastic Wave Velocity Structures of Taiwan: Implications for the Evolution of an Arc-Continent Collision: S W Roecker, C H Lin, Y H Yeh, P A Friberg		<b>0900 h</b> <b>SP41A-01</b> Characteristics of Coronal Holes Associated With Geomagnetic Storms: S I Watari
<b>1130 h</b> <b>S41A-13</b> Strong Inhomogeneity in the Wedge Mantle Revealed From the Broadening of Seismogram Envelope: K Obara		<b>0915 h</b> <b>SP41A-02</b> Preliminary Results of Interplanetary Scintillation Measurements at 2, 8 and 22 GHz Using 34 m Antenna: M Tokumaru, H Mori, T Tanaka, T Kondo, H Takaba, Y Koyama
<b>1145 h</b> <b>S41A-14</b> A Study of Upper Mantle Q Structure Beneath the Japan Arc Taking Into Account Slab-Induced Defocusing: D Suetsugu, T Iidaka		<b>0930 h</b> <b>SP41A-03</b> Solar Wind Simulation Using a High-Resolution Scheme: T Tanaka, E Sagawa, H Mori
 <b>S41B</b> <b>SKC: 32.33</b> <b>Thurs 0900 h</b> <b>Wave Propagation and Analytical Techniques</b> <b>Presiding:</b> S Tsuboi, Tokyo Univ		<b>0945 h</b> <b>SP41A-04</b> Solar Wind Acceleration at 0.1 to 0.3 AU Observed With Interplanetary Scintillation: M Kojima
<b>0900 h</b> <b>S41B-01</b> Calculating Synthetic Seismograms for Arbitrarily Heterogeneous Media Using the Method of Weighted Residuals: T Ohminato, R J Geller, D Suetsugu		<b>1000 h</b>
<b>0915 h</b> <b>S41B-02</b> Seismic Response in Three-Dimensional Sedimentary Basin Due to Plane S Wave Incidence: M Horike		<b>1015 h</b> <b>SP41A-06</b> Solar Wind Speed and Coronal Properties: K Hakamada
<b>0930 h</b> <b>S41B-03</b> Large Amplitude Overtone Phase From Deep Earthquakes in Vertical Component Seismograms: S Watada, T Tanimoto		<b>1030 h</b> <b>SP41A-07</b> The Interplanetary Causes of Great ( $D_{st}$ ) W D Gonzalez
<b>0945 h</b> <b>S41B-04</b> The Automated Data Acquisition System for the Remote Digital Broadband Seismographs: K Takano, M Takeo, K Abe, S Tsuboi, M Takahashi		<b>1055 h</b> <b>SP41A-08</b> Influence of the Heliospheric Current Sheet on Interplanetary Disturbances: T Watanabe
<b>1000 h</b> <b>S41B-05</b> Extraction of Seismic Signal by a Time Series Model and Screening out Microearthquakes: T Takanami, H Okada, G Kitagawa		<b>1110 h</b> <b>SP41A-09</b> Substorm Activity Controlled by Rotation of the Solar Magnetic Fields: T Oki, T Saito, Y Kozuka
 <b>1015 h</b>	<b>BREAK</b>	<b>1125 h</b> <b>SP41A-10</b> Solar and Solar Wind Conditions for Planar Magnetic Structures: T Nakagawa
<b>1030 h</b> <b>S41B-07</b> Determination of Fault Plane Solutions Using Real-Time First Motion Data: S Tsuboi, K Abe, K Takano		 <b>SP41B</b> <b>KNK: Fuyo A</b> <b>Thurs 0830 h</b> <b>Dynamical Processes in the Middle Atmosphere I</b> (joint with A)
<b>1045 h</b> <b>S41B-08</b> Development of the IBOS (Integrated Borehole Observation System) and Observation by It: S Sakata		<b>Presiding:</b> M Geller, SUNY Stony Brook
<b>1100 h</b> <b>S41B-09</b> Rheology Constants of Crustal Rock Obtained From Long-Term Observation by Borehole Three-Component Strainmeters: S Sakata, S Shimada		<b>0830 h</b> <b>SP41B-01</b> <i>INVITED</i> Highlights of the MU Radar Observation of Wind and Waves in the Middle Atmosphere: S Kato
<b>1115 h</b> <b>S41B-10</b> Attenuation Property of Coda Amplitude in the Middle and Northern Part of Kinki District: M Kanao, K Ito		<b>0900 h</b> <b>SP41B-02</b> Observations of Saturated Gravity Waves in the Middle Atmosphere: T Tsuda, Y Murayama, T Nakamura, M Yamamoto, S Kato, S Fukao
<b>1130 h</b> <b>S41B-11</b> Measurement of $Q^{-1}$ for S Wave in Mudrock at Chikura, Japan: Comparison of Incident and Reflected Phases of Borehole Seismograms: Y Fukushima, S Kinoshita, H Sato		<b>0915 h</b> <b>SP41B-03</b> Doppler-Shifted Atmospheric Gravity Wave Spectra: T E VanZandt, C H Love
<b>1145 h</b> <b>S41B-12</b> Detection of Crustal Stress by Brain Responses: T Tsunoda		<b>0930 h</b> <b>SP41B-04</b> Comparison of Model Doppler-Shifted Atmospheric Gravity Wave Spectra With Vertical and Oblique Spectra Observed Over Very Flat Terrain: G D Nastrom, T E VanZandt, J L Green, W L Clark, J M Warnock, K S Gage
		<b>0945 h</b> <b>SP41B-05</b> Seasonal Variation of Momentum Flux in the Mesosphere Observed With the MU Radar: Y Murayama, T Tsuda, M Yamamoto, S Kato, S Fukao

<b>1000 h</b>		<b>BREAK</b>
<b>1030 h</b>	<b>SP41B-07</b>	Variability of Vertical Eddy Diffusivity in the Middle Atmosphere, Part I: 36-Month Observations by the MU Radar: <b>S Fukao, M D Yamanaka, W K Hocking, N Ao, M Yamamoto, T Nakamura, T Tsuda, S Kato</b>
<b>1045 h</b>	<b>SP41B-08</b>	Meso-and Medium-Scale Dynamics by the MU Radar Troposphere Observations: Preliminary Results: <b>M D Yamanaka, S Fukao, G Kotani, T Yokota, Y Maekawa, T Sato, M Yamamoto, T Tsuda, S Kato</b>
<b>1100 h</b>	<b>SP41B-09</b>	Meteor Wind Observations With the MU Radar: <b>T Tsuda, T Nakamura, M Tsutsumi, K Kita, M Yamamoto, S Kato, S Fukao</b>
<b>1115 h</b>	<b>SP41B-10</b>	Effects of Atmospheric Winds and of Anisotropic Scattering on Radar Interferometry Measurements: <b>J S Van Baelen, A D Richmond, S K Avery, T Tsuda, S Kato, S Fukao, M Yamamoto</b>
<b>1130 h</b>	<b>SP41B-11</b>	A Comparison of Atmospheric Radar Techniques With the MU Radar: Doppler Beam Swinging vs Spaced Antenna FCA and Interferometry: <b>J S Van Baelen, T Tsuda, A D Richmond, S K Avery, S Kato, S Fukao, M Yamamoto</b>
<b>1145 h</b>	<b>SP41B-12</b>	A Comparative Observation of Vertical Winds by Velocity-Azimuth-Display and Vertical Incidence Methods at the MU Radar: <b>S Fukao, M F Larsen, M D Yamanaka, T Tsuda, S Kato, H Nakamura</b>
<b>SP41C</b>		<b>KNK: Horai Thurs 0830 h</b>
<b>Plasma Waves, Instabilities, and Chaos</b>		
<b>Presiding: B T Tsurutani, Jet Propulsion Lab</b>		
<b>0830 h</b>	<b>SP41C-01</b>	INVITED Growth and Damping of Waves Below the Proton Gyrofrequencies During Storm Conditions: <b>R M Thorne, R Horne</b>
<b>0855 h</b>	<b>SP41C-02</b>	Parametric Instability of Hydro-magnetic Waves in Space Plasmas: <b>T Hada, E Mjølhus</b>
<b>0910 h</b>	<b>SP41C-03</b>	A Review of Recent Results on Wave Amplification in a Magnetoplasma: <b>D Summers, R M Thorne</b>
<b>0925 h</b>	<b>SP41C-04</b>	Mode Conversion Process From Z-Mode Waves to Free Space Mode Electromagnetic Waves as the Source Mechanism of AKR: <b>M Iizima, H Oya</b>
<b>0940 h</b>	<b>SP41C-05</b>	Chaos in Driven Alfvén Systems: <b>T Hada, M Nambu, C F Kennel, B Buti, E Mjølhus</b>
<b>0955 h</b>	<b>SP41C-06</b>	On the Role of Energetic Proton Drift Induced Anisotropy in Generating Outer Magnetospheric Pc 1 Waves: <b>B J Anderson, R E Erlandson, K Takahashi, T A Potemra</b>
<b>1010 h</b>	<b>SP41C-07</b>	Proton Cyclotron Echoes and Absorption Bands in $3f_H$ and $4f_H$ Resonances: <b>R E Horita, G M Chen</b>
<b>1025 h</b>		<b>BREAK</b>
<b>1040 h</b>	<b>SP41C-09</b>	Mapping Results of Polar Electrostatic Ion Cyclotron Emissions Associated With Auroral Hiss by Satellites: <b>T Yoshino</b>
<b>1055 h</b>	<b>SP41C-10</b>	Relationship Between Mid-Latitude Hiss and Auroral Hiss: <b>T Ondoh</b>
<b>1110 h</b>	<b>SP41C-11</b>	Ray Tracing Studies for the Ducted Whistler at a Low Latitude: <b>Y Nakamura, T Ondoh</b>

- 1125 h SP41C-12** Electron Generation of Broadband Electrostatic Noise in the Earth's Magnetotail: **T G Onsager, M F Thomsen, J T Gosling, R R Anderson**
- 1140 h SP41C-13** Dispersion Relation of Electrostatic Noise Observed With ISEE-3 in the Deep Tail Boundary Layer: **M Tsutsui, R J Strangeway, B T Tsurutani, J L Phillips, E W Greenstadt, H Matsumoto**
- 1155 h SP41C-14** AMPTE/IRM Studies of Broadband Electrostatic Noise in the Geomagnetic Tail: **R R Anderson**
- 1210 h SP41C-15** A Comparison of the Wide Band Polarization and Multi-Point Fixed Frequency Intensity of Jupiter's Decametric Radiation: **K Imai**

**SP41D KKK: Large Assembly Thurs 0930 h**  
**Global Structures of MHD Waves II Posters**  
**Presiding: J V Olson, Univ of Alaska**

- 0930 h SP41D-01** POSTER Structures of Large Amplitude Pci Waves Observed by DE-2 in the Ionosphere: **T Iyemori, M Sugiura, J A Slavin, L H Brace, G R Ludlow**
- 0930 h SP41D-02** POSTER Amplification of Electromagnetic Ion Cyclotron Waves Along a Wave Path in the Earth's Multicomponent Magnetosphere: **Y D Hu, B J Fraser, J V Olson**
- 0930 h SP41D-03** POSTER Multistation Observations of Pci-2 ULF Pulsations Between the Plasmapause and Polar Cap: **F W Menk, B J Fraser, H J Hansen, P T Newell, C I Meng, R J Morris**
- 0930 h SP41D-04** POSTER High Latitude Pci Bursts Originating Within the Low Latitide Boundary Layer: **H J Hansen, F W Menk, B J Fraser, Y D Hu, P T Newell, C I Meng, R J Morris**
- 0930 h SP41D-05** POSTER Correlations Between Cusp Pci3 Pulsations and the Solar Wind: **J V Olson, P Struckman, C P Price**
- 0930 h SP41D-06** POSTER A Comparison of ULF Fluctuations in the SolarWind, Magnetosheath, and Dayside Magnetosphere: **N Lin, M J Engebretson, R L McPherron, M G Kivelson, C T Russell, B J Anderson, L J Zanetti, T A Potemra, W Baumjohann, H Luehr**
- 0930 h SP41D-07** POSTER ULF Wave Structure Near the Plasmapause: **BJ Fraser, J C Samson, R L McPherron, C T Russell**
- 0930 h SP41D-08** POSTER Multisatellite Studies of the Spatial Extentand Simultaneity of Pci 3-4 Harmonic Pulsations in the Dayside Outer Magnetosphere: **M J Engebretson, K N Erickson, N Lin, B J Anderson, L J Zanetti, T A Potemra**
- 0930 h SP41D-09** POSTER Magnetospheric Oscillations Caused by a Sudden Impulse During the Great Magnetic Storm of February 1986: **K Takahashi, K Yumoto, T Watanabe**
- 0930 h SP41D-10** POSTER Eigenmode Analysis of Coupled Hydromagnetic Oscillations in the Dipole Magnetosphere: **S Fujita, V L Patel**
- 0930 h SP41D-11** POSTER Drift Mirror and Ballooning Instabilitiesin the Magnetosphere: **C Z Cheng, K Takahashi, A T Y Lui**

- 0930 h SP41D-12 *POSTER* An Investigation of Low Latitude Pc3 Geomagnetic Pulsation Resonance Structure by the Gradient Method: C L Waters, F W Menk, BJ Fraser  
 0930 h SP41D-13 *POSTER* Spatial Characteristics of Low Latitude Pc3-4 Geomagnetic Pulsations: C W S Ziesolleck, F W Menk, B J Fraser, P W McNabb  
 0930 h SP41D-14 *POSTER* The Effects of Non-Uniform Ionospheric Conductivity on the Equatorial Pc Pulsations: O Saka  
 0930 h SP41D-15 *POSTER* A Conjugate Area Study of HM Waves Observed in the Auroral Region: Y Tonegawa, N Sato, T Saemundsson  
 0930 h SP41D-16 *POSTER* Observation of Magnetic Pi2 Pulsations on the Ground and in the Magnetosphere: T Sakurai, K Takahashi, K Yumoto, N Sato  
 0930 h SP41D-17 *POSTER* A Conceptual Model of Global pi 2 Pulsations in Middle and Low Latitudes: T Tamao  
 0930 h SP41D-18 *POSTER* Global Mode of ULF Waves in the Equatorial Region: T Kitamura, M Shinohara

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- T41A SFK: F Thurs 0930 h**  
**Rifting, Back Arc Basins, and Tectonics I**  
*Presiding:* T Seno, Tokyo Univ; A Klaus, Hawaii Inst. of Geophysics  
 0930 h T41A-01 The New Isochron Chart and Tectonic History of the Western Central Pacific From Late Jurassic to Early Cretaceous: M Nakanishi, K Tamaki, K Kobayashi  
 0945 h T41A-02 Tectonic Evolution of the Central Mobile Belt (CMB) in New Brunswick: Record of the Opening and Closing of a Middle Ordovician Back-Arc Basin in the Northern Appalachians: C R van Staal  
 1000 h T41A-03 Normal Faults in the Seaward Slope of the Japan Trench: K Kobayashi, K Tamaki, H Fujimoto, T Furuta  
 1015 h T41A-04 Energy Dissipation at the Oblique Spreading: A Tanaka, N Fujii

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- 1030 h BREAK**  
 1045 h T41A-06 Oblique Crustal Opening in the Bismarck Sea, and Its Dynamic Origin: T Eguchi  
 1100 h T41A-07 Extensional Basin Model for the Yama Basin, Japan Sea: T Seno, Y Hamano, K Tamaki, M Yamano  
 1115 h T41A-08 High Resolution Mapping of the Mendana Fracture Zone and Its Relevance to Subduction Induced Rifting of the Nazca Plate Lithosphere: W E K Warsi, T W C Hilde  
 1130 h T41A-09 Structural Evolution of Sumisu Rift, Izu-Bonin Arc: A Klaus, B Taylor, G Moore, M MacKay  
 1145 h T41A-10 Submarine Canyon Development in the Izu-Bonin Forearc: A SeaMARC II Survey of Aoga Shima Canyon: A Klaus, B Taylor  
 1200 h T41A-11 Eocene Crustal Accretion in the Western Pacific: Evidence From ODP Leg 125: J Pearce, B Murton, R Arculus, S van der Laan, M Thirlwall

- V41A SFK: Large Hall Thurs 0830 h**  
**Izu-Oshima Volcano/1986 Eruption (joint with S)**  
*Presiding:* H Watanabe, Univ of Tokyo; H Glicken, Univ of California, SB

- 0830 h V41A-01 *INVITED* The 1986-87 Eruption of Izu-Oshima Volcano, Japan: S Aramaki  
 0850 h V41A-02 *INVITED* Physical Processes of the 1986 Eruption of Izu-Oshima Volcano, Japan: H Watanabe  
 0905 h V41A-03 Evidence of Magmatic Activities at Izu-Oshima Volcano as Inferred From a Seismic Reflection Survey: H Suzuki, K Kasahara, M Ohtake, A Takahashi, T Ikawa, S Abe, Y Kawabe  
 0920 h V41A-04 Magnetization Intensity Mapping on and Around Izu-Oshima Volcano, Japan: S Okuma, M Makino, T Nakatsuka  
 0935 h V41A-05 Interpretation of the Apparent Resistivity Change Prior to the 1986 Eruption of Izu-Oshima Volcano: H Utada

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**0950 h BREAK**

- 1005 h V41A-07 Importance of Volatiles on Activity Model of Izu-Oshima Volcano: Part 1. General Concept and Pre-Eruption Process: H Shinohara, K Kazahaya  
 1020 h V41A-08 Importance of Volatiles on Activity Model of Izu-Oshima Volcano: Part 2. Eruption and Post-Eruption Processes: K Kazahaya, H Shinohara  
 1035 h V41A-09 Origin of Volcanic Tremors at Izu-Oshima Volcano: H Watanabe  
 1050 h V41A-10 *INVITED* Implications of Recent Eruptions at Izu-Oshima Volcano for Driving Mechanism of Magma Migration: Y Ida  
 1110 h V41A-11 *INVITED* Petrological Model of the Eruptions of the Izu-Oshima Volcano, Japan: T Fujii, S Aramaki  
 1125 h V41A-12 Magmatic Evolution on Izu-Oshima Volcano, Japan: Y Kawanabe  
 1140 h V41A-13 *INVITED* Great Phreatomagmatic Eruptions of Izu-Oshima Volcano, Japan: H Glicken, K Nakamura

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- V41B SFK: Middle Hall Thurs 0830 h**  
**Volcanic Avalanche and Pyroclastic Flow (joint with S)**  
*Presiding:* T Ui, Kobe Univ; B Voight, Penn State Univ

- 0830 h V41B-01 *INVITED* Debris Avalanches: Their Source Areas and Modes of Formation: T Ui  
 0850 h V41B-02 Flow and Depositional Mechanisms of Debris Avalanche: S Takarada  
 0905 h V41B-03 *INVITED* Computational Fluid Dynamic Modeling of Volcanic Avalanches at Ontake, Japan, and Mount St. Helens, USA: B Voight, J Sousa  
 0925 h V41B-04 Motion of the Pyroclastic Flows Which Occurred at Mount Semeru Volcano in 1989: T Yamada, T Mizuyama  
 0940 h V41B-05 The 886 A.D. Eruption of Niijima Island, Izu-Mariana Arc—A Case Study of Silicic Phreatomagmatic Eruption: J Itoh

0955 h

BREAK

- 1010 h V41B-07 Ash Eruption of Nakadake Crater, Aso Volcano, Western Japan: K Ono, K Watanabe  
1025 h V41B-08 Sequence of 1988-1989 Tokachidake Eruptions Considered From Ejecta and Geophysical Phenomena: M Yoshida, N Miyaji, Y Nishimura, H Okada  
1040 h V41B-09 Geology and Physical Properties of the Intracaldera Welded Tuff in the Sengan Geothermal Area, Northeast Japan: S Suto, O Matsubayashi  
1055 h V41B-10 Geochemical Characteristics and Origin of Volcanogenic Fragments in the Shirahama Formation, Southern Boso Peninsula, Central Japan: A Koizumi, M Koyama, S Umino, S Aramaki, M Takahashi  
1110 h V41B-11 Mode of Caldera-Forming Eruption at Crater Lake Caldera Inferred From Component Analysis of Lithic Fragments: K Suzuki-Kamata, H Kamata  
1125 h V41B-12 Volcanic-Hazards Assessment of Augustine Volcano in the Aleutian Island Arc, U.S.A.—A Case Study of the 1976 Eruption: H Kamata, R B Waitt

## Thursday P.M.

**Paper Numbers.** A paper number designates the section, or other sponsoring group, and chronology of the presentation. Sample T42A-01.

Section	Day	Time	Ses-	Sequence in Session
T	2 = Tues.	1 = AM	A	01
	3 = Wed.	2 = PM	B	
	4 = Thur.		C	
	5 = Fri.		D	
	6 = Sat.			

Thus, T42A-01 = Tectonophysics, Thursday, PM, concurrent session A, first paper in that session.

### G42A SKC: 21 Thurs 1330 h

#### Earth Rotation and Dynamics

*Presiding:* K Yokoyama, National Astronomical Observatory; T Herring, MIT

- 1330 h G42A-01 Global and Regional Studies of the Excitation of Earth Rotation by the Atmosphere/Ocean System: D A Salstein, R D Rosen, R M Ponte  
1345 h G42A-02 Earth Rotation Monitoring With Orthogonal VLBI Baselines: T Yoshino, F Takahashi, K Yokoyama  
1400 h G42A-03 Variation of UT1 due to Long Period Tides and Mantle Q: Y Tamura  
1415 h G42A-04 Tidal Displacements and the Determination of Short Period Earth Rotation Variations: T A Herring  
1430 h G42A-05 Earth Orientation Parameters From a Global GPS Tracking Network: E C Pavlis, T A Williams  
1445 h G42A-06 Earthquakes and the Decade Fluctuations in Polar Motion: R S Gross  
1500 h G42A-07 Results of the IRIS-P Burst Earth Rotation Observations Made in February 1990: K Yokoyama, S Manabe, S Hama, Y Takahashi

### H42A KNK: Fuyo B Thurs 1330 h

#### Stable and Radioactive Isotopes in Hydrology I

*Presiding:* W W Wood, USGS, Reston; N Tase, Univ of Tsukuba

- 1330 h H42A-01 INVITED Spatial and Temporal Variations of Environmental Tritium of River Water in Mountainous Catchments: K Sanjo  
1355 h H42A-02 INVITED Study of Shallow Groundwater Movement to Perched Springs in Southwest Nevada by Ionic, Isotopic and Discharge Measurements: B F Lyles, N L Ingraham, R L Jacobson, J W Hess  
1420 h H42A-03 INVITED Analysis of Temporal Variations in Streamwater Chemistry During Storm: H Ikeda, T Ohsumi

1445 h H42A-04 Use of  $^2\text{H}$  and  $^{18}\text{O}$  in Defining Solute Balance in an Evaporating Lake-Groundwater System: W W Wood

1500 h **BREAK**

1515 h H42A-06 *INVITED* Isotopic Constraints on the Interaction of Near Surface Ground Water and Formation Brine in the Michigan Basin: D T Long, T P Wilson, L Badalamenti

1540 h H42A-07 *INVITED* Carbon Isotopes and Reappraisal of the Hydrogeochemical Concept of "Soil Zone as Acid Pump": C K Keller, D L Johnstone, B D Wood, K J Severson, C S Haling

1605 h H42A-08 *INVITED* Age Dating of Porewaters From Clayey Till Using Radiocarbon in DIC and DOC: M J Hendry, L I Wassenaar

**O42A KNK: Aioi Thurs 1330 h**  
**Deep and Intermediate Water Circulation II**  
*Presiding:* W Schmitz, Woods Hole Oceanogr. Inst.; B Taft, WOCE IPO

1330 h O42A-01 Direct Current Measurement in the Pacific North Equatorial Current: N Yoshioka, M Endoh, H Ishizaki

1350 h O42A-02 Tracking of Sofar Floats at Mid-Depth in Shikoku Basin: K Taira, S Kitagawa, K Uehara, H Ichikawa, H Hachiya, T Teramoto

1410 h O42A-03 The Hydrographic Structure Along 12°N and 13°N in the Philippine Sea: K Uehara, K Taira, A Masuda

1430 h O42A-04 A Model of the Abyssal Circulation in Relation to the Philippine Sea: A Masuda, K Uehara, K Taira

1450 h O42A-05 *INVITED* Abyssal Circulation Model of the Philippine Sea: M Kubota, K Ono

1510 h **BREAK**

1530 h O42A-07 Performances of a World Ocean Model With Seasonal Change in Driving Forces: T Motoi, M Endoh

1550 h O42A-08 Deep Circulation in the North Pacific Ocean: H Ishizaki

1610 h O42A-09 *INVITED* Long-Term Variations of SST and Subsurface Thermal Conditions in the North Pacific: K Hanawa

**S42A SKC: Large Hall Thurs 1330 h**  
**Dynamics and Structure of Plate Boundaries II**  
(joint with T)  
*Presiding:* C Finn, USGS

1330 h S42A-01 A Kinematic Model for Evolution of Island Arc-Trench Systems: T Sato, M Matsu'ura

1345 h S42A-02 Geophysical Models Across Pacific Convergent Margins: Implications for Subduction Erosion: C Finn

1400 h S42A-03 Interpretation of in Situ Depth Gradient of Horizontal Stress: The Flexure Around Plate Boundaries: H Ogasawara

1415 h S42A-04 Fissure Events and Tectonics in the Northeastern Margin of the Philippine Sea Plate: T Tada, M Hashimoto

1430 h S42A-05 Seismotectonics Around the Izu Peninsula: Deformation of the Philippine Sea Plate: A Yoshida

1445 h S42A-06 Underground Collision of the Philippine Sea Plate With the Pacific Plate: N Hurukawa, M Imoto

1500 h **BREAK**

1515 h S42A-08 Interplate Coupling Along the Nankai Trough: S Yoshioka

1530 h S42A-09 Extensional Stresses by the Hinge Faulting Between the Nankaido and the Tonankai Segment of the Subducting Philippine Sea Plate in the Kii Peninsula, Southwest Japan: M Mizoue, M Nakamura, N Seto

1545 h S42A-10 Extension of the Overriding Plate at Convergent Margins: Evidence From Shallow Earthquakes Beneath Active Volcanic Arcs: K D Apperson

1600 h S42A-11 Evidence for Changing Plate Motions in the Eocene Shimanto Belt, Southwest Japan: T Byrne, A Taira, L DiTullio

1615 h S42A-12 Ductile Extension as a Cause of Exhumation of the Sambagawa High P/T Metamorphic Belt, Japan: S R Wallis, S Banno

**S42B SKC: 32.33 Thurs 1330 h**  
**Seismicity and Magnitudes**  
*Presiding:* M Wysession, Northwestern Univ

1330 h S42B-01 Earthquake Swarm Activities Northwest off Chichijima, Bonin Islands in 1985: T Moriyama

1345 h S42B-02 Earthquake Swarms in Western Kyushu: Characteristics of Hypocentral Regions: K Umakoshi, H Shimizu

1400 h S42B-03 Local Earthquake Activities Around Syowa Station, East Antarctica: K Kaminuma, J Akamatsu

1415 h S42B-04 Intraplate Seismicity in the Pacific Basin, 1913-1988: M E Wysession, E A Okal, K Miller

1430 h S42B-05 Systematic Difference in the ISC Body-Wave Magnitude—Seismic Moment Relationship Between Intermediate and Deep Earthquakes Around Japan: K Kuge

1445 h S42B-06  $M_m$ : Application of Mantle Magnitudes to the Single-Station Estimation of the Seismic Moment of Large Historical Earthquakes: E A Okal

1500 h S42B-07 Use of the Mantle Magnitude  $M_m$  for Real-Time, Automated Single-Station Estimation of Teleseismic Moments: D Reymond, O Hyvernaud, J Talandier, E A Okal

**SP42A KNK: Kaga Thurs 1330 h**  
**Global Structures of MHD Waves III**  
*Presiding:* B J Fraser, Newcastle Univ

1330 h SP42A-01 *INVITED* Generation of Hydromagnetic Waves by Physical Processes at the Dayside Magnetopause: A Review: L C Lee

1355 h SP42A-02 *INVITED* The Distributions of Shock-Related ULF Waves Outside the Magnetopause: E W Greenstadt

1420 h SP42A-03 *INVITED* ULF Pulsations Observed at the Polar Cusp: J V Olson, B J Fraser

1445 h SP42A-04 *INVITED* Coupling of Compressional and Alfvén Waves in the Magnetosphere: R L Lysak

**1510 h** **BREAK \***

1530 h SP42A-06 *INVITED POSTER PREVIEW* Characteristics of ULF Waves Generated by External and Internal Magnetospheric Processes: B J Fraser

**SP42B KNK: Fuyo A Thurs 1330 h**  
**Dynamical Processes in the Middle Atmosphere II**  
(joint with A)

*Presiding:* S Fukao, Kyoto Univ

1330 h SP42B-01 *INVITED* Kelvin Waves in the Equatorial Middle Atmosphere: I Hirota, M Shiotani, T Sakurai, J C Gille

1400 h SP42B-02 Comparative Radar Observations of the Mesospheric Gravity Waves in the Northern and Southern Hemisphere, Kyoto(35°N) and Adelaide(35°S): T Nakamura, T Tsuda, Y Tawara, Y Murayama, M Yamamoto, S Kato, S Fukao

1415 h SP42B-03 Sources of Gravity Waves and Mesoscale Variability From Aircraft Studies in GASP: G D Nastrom, D C Fritts

1430 h SP42B-04 Generation of Stratospheric Inertia-Gravity Waves as a Multiplication of Tropopause: M D Yamanaka

1445 h SP42B-05 A Dynamical Explanation for the Asymmetry in Zonally Averaged Column Ozones Between Northern and Southern Springs: A Hou, H R Schneider, M Ko

**1500 h** **BREAK**

1530 h SP42B-07 *INVITED* Effects of Satellite Observation and Mapping on Middle Atmosphere Fields: M Geller, Y Chi, R Rood, J Kaye

1600 h SP42B-08 A Numerical Modelling on the Time Evolution of Atmospheric Tides: T Aso

1615 h SP42B-09 Tidal Waves Simulated With a General Circulation Model: M Chiba, K Shibata

1630 h SP42B-10 Gravity Wave Drag Parameterization and Stratospheric Sudden Warming: I Yagai, K Yamazaki

1645 h SP42B-11 Seasonal Variation of the Lagrangian-Mean Circulation of NCAR CCM1: T Iwasaki

**SP42C KNK: Horai Thurs 1330 h**  
**Magnetic Storms and Magnetic Quiet Periods**  
*Presiding:* T Saito, Tohoku Univ

1330 h SP42C-01 *INVITED* The Space Weather Forecast Program of Japan: K Marubashi, T Kikuchi, M Tokumaru, F Tomita, T Ogawa

1355 h SP42C-02 The Definitions of and Distinctions Between Geomagnetic Sudden Impulses (SI) and Sudden Storm Commencements (SSC): J A Joselyn, B T Tsurutani

1410 h SP42C-03 Low Latitude Auroras on October 21, 1989: H Miyaoka, T Hirasawa, K Yumoto, Y Tanaka

1425 h SP42C-04 Role of Pi1 on Red Aurora Observed in Japan: T Saito, H Matsuoka, H Takeuchi

1440 h SP42C-05 Disturbances of Both Earth's and Cometary Magnetospheres Excited by the Same Solar Flare: Y Kozuka, T Saito

1455 h SP42C-06 *INVITED* Forecasting Magnetically Quiet Periods: J A Joselyn

**1520 h** **BREAK**

1535 h SP42C-08 Geomagnetic Activity for Northward Fields: L Scurry, C T Russell

1550 h SP42C-09 Polarizations of Sudden Commencements and Sudden Impulses in the Magnetotail: H Kawano, T Yamamoto, S Kokubun

1605 h SP42C-10 Current Vortices in the Polar Ionosphere at the Geomagnetic Sudden Commencements: H Nagano, T Araki

1625 h SP42C-11 Magnetic Field Structure at the Geosynchronous Orbit: T Araki, T Iguchi

1640 h SP42C-12 Suprathermal Mass Spectrometer (SMS) Observations of Minor Ions in the Magnetosphere: A W Yau, B A Whalen

**T42A SFK: Middle Hall Thurs 1330 h**  
**Rifting, Back Arc Basins, and Tectonics II**

*Presiding:* T Takeshita, Ehime Univ; A Nur, Stanford Univ

1330 h T42A-01 Dynamics and Evolution of the Lithosphere-Asthenosphere System in the Japanese Island Arc: Japan Sea Opening and Hidaka Metamorphism: T Takeshita, M Komatsu, A Yamaji

1345 h T42A-02 Fission-Track Thermochronology of Granitic Bodies Around Kofu Basin, Central Japan: T Nishiyama, T Tagami, S Nishimura

1400 h T42A-03 Counter-Clockwise Paleomagnetic Direction From the Gongen-yama Formation (N9-N10) on the Western Coastal Area of Northeast Japan: Implications for the Formation of the Japan Sea: H Momose, M Torii

1415 h T42A-04 Crustal Structure and Magnetic Anomaly in Southern Part of Boso Peninsula, Chiba, Japan: R Morijiri, T Fujiwara, S Ogura, H Kinoshita, T Nagao

1430 h T42A-05 K-Ar Ages of Some Plutonic Rocks in the South Fossa Magna: K Saito, I Otomo, K Kato, Y Takai

**1445 h** **BREAK**

1500 h T42A-07 Continental Rifting in Kyusyu, Japan: T Tada

1515 h T42A-08 Deformation of a Narrow Zone Along the Indus-Zangbo Suture Between India and Asia: Paleomagnetic Study of Western Tibet: Y Otofugi, S Funahara, J Matsuo, F Murata, K Yaskawa, T Nishiyama, X Zheng

1530 h T42A-09 Deformation of the Three Rivers Region: Paleomagnetic Study of Eastern Tibet: Y Otofugi, Y Inoue, S Funahara, F Murata, X Zheng

1545 h T42A-10 Deformation of Southern Asia: The Preliminary Paleomagnetic Study of the Western Yunnan Province, China: S Funahara, Y Z Wang

- 1600 h T42A-11** A New Model for the Formation of Back Arc Basins: **A Nur, J Dvorkin, G Mavko, Z Ben-Avraham**
- 1615 h T42A-12** Changes in the Directions of Geomagnetic Anomaly Lineations in Enderby Basin, off Antarctica: **Y Nogi, N Seama, N Isezaki, M Funaki, K Kaminuma**
- 1630 h T42A-13** High Resolution Imaging of Electromagnetic Structures of Ground: Application of Ground Radar for the Purpose of Archaeological Investigation, Nakajima City, Ishikawa Ken, Japan: **D Goodman, M Badiey, T Yamamoto**
- 1645 h T42A-14** Contemporaneous Rotation of Southwest Japan: Kinematic and Mechanical Model for Past Rotations: **S Altis, T W C Hilde**

**V42A SFK: Large Hall Thurs 1330 h**  
**Off-Ito Eruption 1989 and Long Valley Caldera**  
*(joint with S)*  
**Presiding:** **Y Ida**, Univ of Tokyo; **D P Hill**, USGS, Menlo Park

- 1330 h V42A-01** Tilt Changes Associated With Recent Volcanic Eruptions Around the Izu Peninsula, Central Japan: **E Yamamoto, Y Okada, T Ohkubo, T Kumagai**
- 1345 h V42A-02** *INVITED* Interpretation of 1989 off Ito Earthquake Swarm and Submarine Volcanic Activities in Central Japan: **Y Okada, E Yamamoto**
- 1410 h V42A-03** The Seismicity Accompanying the Eruption of a New Submarine Volcano off Izu Peninsula, Japan: **S Ueki, Y Morita, T Nishimura, S Horiuchi, H Hamaguchi**
- 1425 h V42A-04** *INVITED* Source Mechanism of Volcanic Tremor Estimated From Seismic Array Observations: **K Yamaoka**
- 1450 h V42A-05** Source Process of an Unusual Earthquake (M5.5) During the 1989 Ito-oki, Japan, Pre-Eruption Swarm Activity: **E Fukuyama, S Kinoshita, F Yamamizu**
- 1505 h V42A-06** Reflection Profiles of the Active Volcanic Region off the East Coast of Izu Peninsula: **K Kasahara, F Yamamizu, A Takahashi, T Ikawa**
- 1520 h V42A-07** Multi-Channel Reflection Profiles of the Active Tectonic Field, off the East Coast of the Izu Peninsula: **K Kasahara, H Suzuki, F Yamamizu, Y Okada, T Kuroda, T Ikawa, Y Iwaki, M Asada**

- 1535 h BREAK**
- 1550 h V42A-09** *INVITED* Possible Models of Long Valley Caldera From 3-D Raytracing of Teleseismic Waves: **L K Steck, W A Prothero**
- 1615 h V42A-10** *INVITED* The Evolving Image of a Complex Magmatic System Beneath Long Valley Caldera and the Mono-Inyo Volcanic Chain, Eastern California: **D P Hill, R A Bailey**

**V42B SFK: F Thurs 1330 h**  
**Magmatic Volatiles and Hydrothermal Processes**  
**Presiding:** **M Kusakabe**, Okayama Univ; **J W Hedenquist**, Geological Survey of Japan

- 1330 h V42B-01** Ne Excess in Natural Glasses: **K Matsubara, J Matsuda**

- 1345 h V42B-02** Partition of Nitrogen and Noble Gases Between Gas and Liquid Phases: **A Miyazaki, H Hiyagon, K Hashizume, N Sugiura**
- 1400 h V42B-03** Concentrations of Polonium-210 and Lead-210 in the Surface Air, Sublimes and Condensates From Volcanic Areas of Japan: **K Komura, K Uchida, M Yamamoto, K Ueno, H Sakamoto**
- 1415 h V42B-04** Trace and Volatile Element Microanalysis by SIMS: **H Yurimoto, M Kurosawa, S Sueño**
- 1430 h V42B-05** Microanalysis of  $\text{H}_2\text{O}$  and  $\text{CO}_2$  in Silicate Glasses by Laser Extraction and QMS: **G Saitoh, M Kusakabe**
- 1445 h V42B-06**  $^3\text{He}$  Flux From Subaerial Volcanoes: The  $^{210}\text{Po}$  Calibration: **B Marty, M F Le Cloarec**

- 1500 h BREAK**
- 1515 h V42B-08** *INVITED* An Estimate of Thermal and  $\text{CO}_2$  Fluxes to Lake Nyos, Cameroon: **M Kusakabe, Y Nojiri, Y Sano, H Sato, J Hirabayashi, H Shinohara, G Tanyileke**
- 1535 h V42B-09** *INVITED* Chemistry and Metal Contents of Discharges From Esan and Kirishima Volcanoes, Japan: Effects and Significance of Meteoric Interaction: **M Aoki, J W Hedenquist**
- 1555 h V42B-10** Oxygen Isotope Measurement of Wairakite and Its Application to the Kirishima and Takigami Geothermal Fields, Japan: **M Noto, M Kusakabe**
- 1610 h V42B-11** Dissolution and Hydration of Olivine Under Hydrothermal Conditions: **K Fujimoto, B Velde**
- 1625 h V42B-12** Precipitation and Dissolution of Quartz in Cooling and Diluting Hydrothermal Solution: **Y Shibue**
- 1640 h V42B-13** ESR Studies of Thermal Effect in Metamorphic Rock Near the Instruction Rock: **S Toyoda, M Ikeya, H Minamibayashi**
- 1655 h V42B-14** Fossilized Argon Wave in Biotite Around a Dike Contact: **D York, H Hyodo**

**DISCUSSION**

## Friday A.M.

**Paper Numbers.** A paper number designates the section, or other sponsoring group, and chronology of the presentation. Sample T51A-01.

Section	Day	Time	Ses-	Sequence in Session
T	2 = Tues.	1 = AM	A	01
	3 = Wed.	2 = PM	B	
	4 = Thur.		C	
	5 = Fri.		D	
	6 = Sat.			

Thus, T51A-01 = Tectonophysics, Friday, AM, concurrent session A, first paper in that session.

**G51A** SKC: 21 Fri 0830 h

### Gravity, Sea Level, and Vertical Motion

*Presiding:* J Segawa, Univ of Tokyo; M Zumberge, Scripps Inst. of Oceanogr.

0830 h G51A-01 Derivation of the Most Reliable Geoid and Gravity Anomalies in Japan and the Surrounding Seas Using GEOS/SEASAT/GEOSAT Altimeter Data and Ground/Sea Truth Gravity Data: Y Fukuda, J Segawa

0845 h G51A-02 A Closed Global Gravity Tie by a Surface Ship Gravimeter and Study of Long-Wavelength Gravity Anomaly: J Segawa, C S Yang, Y Fukuda

0900 h G51A-03 Height Variations of the Global Satellite Laser Ranging Network: E C Pavlis, D E Smith

0915 h G51A-04 Tidal Gravity Observation at Asuka Station on the Ice Sheet of Antarctica: K Shibuya, F Ogawa, Y Fukuda

0930 h G51A-05 Gravity Anomaly as a Fossil Evidence of Past Fault Motion: S Okubo, R Shichi, M Satomura, M Komazawa

0945 h G51A-06 Secular Gravity Change in Tokai District, Honshu, Japan: S Nakai, R Shichi, K Nakamura, T Higashi

**1000 h** *BREAK*

1015 h G51A-08 Gravity Changes Associated With Atmospheric Pressure Variation Observed by a Superconducting Gravity Meter: K Doi, T Higashi, I Nakagawa

1030 h G51A-09 Plans for the Development of an Ocean Bottom Absolute Gravity Meter: M A Zumberge, J A Hildebrand

1045 h G51A-10 A New Generation Transportable Absolute Gravimeter: T Tsubokawa, H Hanada, S Tsuruta

1100 h G51A-11 Development of the Absolute Gravimeter With a Rotating Vacuum Pipe and Experiments for Automation: H Hanada, T Tsubokawa, S Tsuruta

**H51A** KNK: Fuyo B Fri 0830 h

### Surface Water Hydrology II

*Presiding:* K Takeuchi, Yamanashi Univ

0830 h H51A-01 Experiments on Stream Flow Generation by the Hillslope Model: Y Sakura

0845 h H51A-02 Experimental Study of the Infiltration Processes in a Slope: T Yamada, Y Iwasaki

0900 h H51A-03 A Long-Term Runoff Model Based on Subsurface Flow: M Tani

0915 h H51A-04 Hydrogeomorphological Interactions on the Hillslope With Special Reference to the Throughflow: K Okunishi, T Yoshida, T Saito

0930 h H51A-05 A Basic Study on Effects of Catchment Scale on Direct Runoff Discharge: K Sunada

0945 h H51A-06 Hydrologic Process Zone Identification for Small Catchments Subject to Land Use Change: S J Burges

**1000 h** *BREAK*

1015 h H51A-08 Effects of Land Reclamation on Runoff Characteristics: H Tanakamaru, M Kadoya

1030 h H51A-09 On the Formation of Hydrograph and Its Characteristics: T Yamada, Y Toyoda

1045 h H51A-10 A System Identification Approach to Model Dynamic Hydrologic Behaviour at Catchment Scale: A J Jakeman, H D Symons, I G Littlewood, P G Whitehead

1100 h H51A-11 Tropical Hydrology Simulation Model-1 for Watershed Management: S Susanto, Y Kaida

1115 h H51A-12 Study on the Synthetic Storage Function Model: H Sugiyama, M Kadoya, A Nagai

1130 h H51A-13 Study on Runoff Process Based on Probability Characteristics of River Network Structure: H Hayakawa, M Fujita

1145 h H51A-14 Interrelationships Among Slope Failures, Hydrological Processes and Regolith Zone Formation: Y Onda, S Shindo

**H51B** KNK: Horai Fri 0830 h

### Contaminant Transport: Theory and Interpretation

*Presiding:* S P Neuman, Univ of Arizona; M Nishigaki, Okayama Univ

0830 h H51B-01 INVITED Characteristic Finite Element Method With Spline Interpolation for Convective-Dispersive Transport: K Fujinawa

0855 h H51B-02 Transverse Dispervity in the Mixing Zone of Fresh-Salt Groundwater: K Jinno, K Momii, T Hosokawa

0910 h H51B-03 Stochastic Analysis of Dispersion in Unsteady Flow Through Heterogeneous Porous Media: K R Rehfeldt, L W Gelhar

0925 h H51B-04 INVITED Solute Movement in Heterogeneous Porous Media: A Discussion of the Position and Arrival Time Analyses: A M Shapiro

0950 h H51B-05 INVITED Effects of Heterogeneity and Viscosity in Simulation of Solute Transport: M F Wheeler, T F Russell

<b>1015 h</b>	<b>BREAK</b>	
<b>1030 h H51B-07</b>	An Experimental Investigation of the Role of Scale and Heterogeneity on Fickian Dispersion: <b>J S Haselow, R A Greenkorn</b>	
<b>1045 h H51B-08</b>	Difference of Dispersion Coefficient in Intrusion and Exclusion of Salt Water in Sand: <b>S Sugio</b>	
<b>1100 h H51B-09 INVITED</b>	The Energy Description of Dispersion in Geologic Media: <b>G L Moltyaner</b>	
<b>1125 h H51B-10</b>	An Evaluation of Contaminant Migrations at Two Waste Disposal Sites: <b>C Tang</b>	
<b>1140 h H51B-11 INVITED</b>	Stochastic Model of Ensemble-Average Concentration and Its Variance for Transport of Conservative and Reactive Solute in Heterogeneous Aquifers: <b>Z J Kabala, G Sposito</b>	
<b>1205 h H51B-12</b>	Universal Scaling of Hydraulic Conductivities and Dispersivities on Geologic Media: <b>S P Neuman</b>	
<b>O51A KNK: Aioi Waves, Tides, and Turbulence</b>	<b>Fri 0830 h</b>	
<b>Presiding: I S F Jones, Univ of Sydney; T Yanagi, Ehime Univ</b>		
<b>0830 h O51A-01</b>	Parameterization of Turbulent Mixing in the Western Equatorial Pacific: <b>S Kanari, C Kobayashi, K Takeuchi</b>	
<b>0845 h O51A-02</b>	Measurements in the Turbulent Boundary Layer Under Landfast Ice: <b>K Shirasawa, R G Ingram</b>	
<b>0900 h O51A-03</b>	Ocean Drag Coefficients Measured From Offshore Structures: <b>I S F Jones</b>	
<b>0915 h O51A-04</b>	Existence of Multiple Regimes in Wave Dependence of the Sea-Surface Wind Stress: <b>Y Toba, N Ebuchi</b>	
<b>0930 h O51A-05</b>	Growth of Wind Waves With Fetch Observed by the GEOSAT Altimeter in the Japan Sea Under Winter Monsoon: <b>N Ebuchi, H Kawamura, Y Toba</b>	
<b>0945 h</b>	<b>BREAK</b>	
<b>1000 h O51A-07</b>	Sea Surface Height, Wind Speed and Significant Waveheight Variability in the Western Pacific: <b>E B Dobson, D L Porter</b>	
<b>1015 h O51A-08</b>	Tidal Current in the Coastal Waters: <b>N Hayakawa, Y Matsuno</b>	
<b>1030 h O51A-09</b>	Tide-Induced Residual Currents Caused by the Horizontal Variation of the Tidal Currents in a Rotating Basin: <b>H Yasuda</b>	
<b>1045 h WITHDRAWN</b>	Final Two-Dimensional	
<b>1100 h O51A-11</b>	Directional Spectra Observations of Seafloor Microseisms and Gravity and Infragravity Water Waves From an Ocean Subbottom Sesimotmeter Array: <b>T Yamamoto, T Nye, M Trevorrow, D Goodman</b>	
<b>1115 h O51A-12</b>	The Bottom Shear Modulus Profiler (BSMP), a Passive Remote Sensor Using a Gravity Wave Inversion: <b>T Yamamoto, M Trevorrow</b>	
<b>S51A SKC: Large Hall</b>	<b>Fri 0930 h</b>	
<b>Dynamics and Structure of Plate Boundaries III</b>		
<i>(joint with T)</i>		
<b>Presiding: K Shimazaki, Tokyo Univ</b>		
<b>0930 h S51A-01</b>	Apparent Polar Wander Path of North China Block Since Jurassic: <b>Z Zheng, M Kono, H Tsunakawa, G Kimura, Q Wei, X Zhu, T Hao</b>	
<b>0945 h S51A-02</b>	Intraplate Movement Inferred From Paleomagnetic Poles From East of Tanlu Fault in the North China Block: <b>H Uchimura, M Kono, G Kimura, H Tsunakawa, Q Wei</b>	
<b>1000 h S51A-03</b>	Incipient Rifting of Oceanic Lithosphere Associated With the Large-Scale Plate Boundary Reorganization Near Easter Island: <b>D F Naar, F Martinez, R N Hey</b>	
<b>1015 h S51A-04</b>	Glaucophane Schists of Diverse Ages Associated With Serpentinite Belts in Eastern Australia: <b>T Watanabe, T Itaya, S Fukui, E C Leitch, M Iwasaki</b>	
<b>1030 h</b>	<b>BREAK</b>	
<b>1045 h S51A-06</b>	Seismicity Along the Southern Segment of the Pacific-Australian Plate Boundary: <b>M E Wyession, E A Okal</b>	
<b>1100 h S51A-07</b>	Means and Variances of Focal Mechanism Solutions: <b>S Matsumura</b>	
<b>1115 h S51A-08</b>	Seismic Activity and Tectonic Stress in Kyushu, Southwest Japan: <b>H Shimizu, N Matsuwo, K Umakoshi, S Kuwahara</b>	
<b>1130 h S51A-09</b>	Subsurface Structure Beneath Beppu Bay Inferred From Seismic Reflection Surveys by an Air-Gun Method: <b>Y Yusa, A Kubotera, S Horie, I Nakagawa, Y Kobayashi, K Kitaoka, K Kamiyama, K Takemura, Y Sudo, T Ikawa, M Onishi, M Asada</b>	
<b>1145 h S51A-10</b>	Recurrent Slip Pattern: Field Evidence in Beppu Bay, Japan: <b>K Shimazaki, T Nakata, N Chida, M Okamura, T Miyatake</b>	
<b>S51B SKC: 32.33</b>	<b>Fri 1000 h</b>	
<b>Dynamics and Structure of the Deep Interior I</b>		
<i>(joint with G,GP,T,V)</i>		
<b>Presiding: C Wicks Jr, Univ of California, B</b>		
<b>1000 h S51B-01</b>	Hydrogen Distribution in San Carlos Olivine: <b>M Kurosawa, H Yurimoto, S Sueño, K Matsumoto</b>	
<b>1015 h S51B-02</b>	Oxygen Diffusion Along High Diffusivity Paths in Forsterite and Implications for Creep Mechanism: <b>H Yurimoto, M Morioka, H Nagasawa</b>	
<b>1030 h S51B-03</b>	Time-Dependent Convection With T, P-Dependent Non-Newtonian Rheology: <b>T Nakakuki, H Fujimoto</b>	
<b>1045 h S51B-04</b>	Seismologic Constraints on the Phase Change at 670 km: <b>C W Wicks, M A Richards</b>	
<b>1100 h S51B-05</b>	Global Upper Mantle Lateral Velocity Variations With Spherical Harmonics up to $l_{max} = 30$ : <b>Y S Zhang, T Tanimoto</b>	
<b>1115 h S51B-06</b>	Iterative Waveform Inversion for Laterally Heterogeneous Earth Structure Using a Laterally Heterogeneous Starting Model: <b>T Hara, S Tsuboi, R J Geller</b>	
<b>1130 h S51B-07</b>	Lateral Variation of Q From Singlet Modal Q Measurements of $^{18}_\text{O}S_2$ : <b>T Tanimoto</b>	

**1145 h SP51B-08** Thickening of Subducted Lithosphere at a Viscosity Step: C Trengove, G F Davies

**SP51A KNK: Kaga Fri 0830 h**  
Highlights of the EXOS-D, Viking, and DE Projects I

**Presiding:** H Oya, Tohoku Univ

**0830 h SP51A-01** INVITED The Dynamics Explorer Program and Its Application to the Auroral Particle Acceleration Problem: R A Hoffman

**0900 h SP51A-02** INVITED ELF/VLF Wave Signatures of Wave-Particle Interactions Observed on the Dynamics Explorer-1 Spacecraft: U S Inan, V S Sonwalkar, R A Helliwell

**0925 h SP51A-03** INVITED Impulsive VLF Signals Observed on the DE 1 Satellite: R A Helliwell, V S Sonwalkar, U S Inan

**0950 h BREAK**

**1005 h SP51A-05** INVITED The Viking Project: G Gustafsson

**1035 h SP51A-06** INVITED High Latitude Observations of Low Frequency Electromagnetic Waves From Viking: R E Erlandson, T A Potemra, L J Zanetti

**SP51B KNK: Fuyo A Fri 0830 h**  
Stratospheric Ozone and Atmospheric Chemistry I (joint with A)

**Presiding:** N Iwagami, Univ of Tokyo

**0830 h SP51B-01** Stratospheric Ozone, Temperature and Aerosol Measurements by MRI Mark II Mobile Lidar: O Uchino, T Tabata

**0855 h SP51B-02** Observation of Stratospheric Ozone and Temperature Profiles Using a Multiple Wavelength UV Lidar at NIES: H Nakane, Y Sasano, N Sugimoto, S Hayashida-Amano, I Matsui, A Minato

**0910 h SP51B-03** Observations of Atmospheric Ozone and Nitrous Oxide With the Laser Heterodyne Spectrometer at Sendai, Japan: M Taguchi, S Okano, H Fukunishi

**0925 h SP51B-04** Concurrent Observations of Tropospheric and Stratospheric Ozone With the Laser Heterodyne Spectrometer and Ozonesondes at Sendai, Japan: S Okano, M Taguchi, H Fukunishi, Y Sasano

**0940 h SP51B-05** Diurnal Variation of Nitric Oxide in the Upper Stratosphere: Y Kondo, A Iwata, M Pirre, R Ramaroson, P Aimedieu, W A Matthews, W R Sheldon, J R Benbrook

**0955 h SP51B-06** Far Infrared Limb Observing Spectrometer for Stratospheric HO<sub>x</sub> Measurements: H M Pickett, D B Peterson

**1010 h SP51B-07** A Simulation Study to Observe Stratospheric O<sub>3</sub> and ClO Using Millimeter-Wave Ground-Based and Limb Sounding Systems: S Ochiai, H Masuko

**1030 h BREAK**

**1045 h SP51B-09** Distribution of Total Ozone Amounts Over Japan Derived From NOAA/TOVS Data: S Takahashi, S Okano, H Fukunishi

**1100 h SP51B-10** Plan for Polar Ozone Studies Using Improved LAS Onboard ADEOS Satellite: Y Sasano, M Suzuki, T Yokota, H Akimoto, A Matsuzaki, K Asada

**1115 h SP51B-11** Retroreflector In-Space (RIS) for Japanese Satellite ADEOS: Measurement of Atmospheric Trace Species Based on Earth-Space-Earth Laser Long Path Absorption: A Minato, N Sugimoto, Y Sasano

**1130 h SP51B-12** Model Assessment of the Ozone Impacts From CFC Substitutes: N D Sze, M Ko

**1145 h SP51B-13** Early Detection of Stratospheric Changes: Possible Impact of Heterogeneous Chemistry: J M Rodriguez, N D Sze, M K W Ko

**1200 h SP51B-14** Ozone Impact From Hypersonic Civil Transport: A Two-Dimensional Model Assessment: M Ko, N D Sze, D Weisenstein

**1215 h SP51B-15** Input of the Atmospheric Trace Elements to the Yellow Sea During the Spring of a Low-Dust Year: Y Gao, R A Duce, R Arimoto

**T51A SFK: F Fri 0845 h**  
High Pressure

**Presiding:** M Nicol, Univ of California, LA; M Akaogi, Gakushuin Univ

**0845 h T51A-01** Direct Determination of Cation Diffusion Coefficients in Pyroxenes: K Fujino, H Naohara, H Momoi

**0900 h T51A-02** Sulfur at High Pressures: Raman Spectra, Photosensitivity, and Phase Transitions: P Wolf, B J Baer, H Cynn, M Nicol

**0915 h T51A-03** Pressure Effect on the Divalent Cation Distribution in Mg-Fe Olivine Solid Solution: T Aka-matsu, M Kumazawa, N Aikawa, F Takei

**0930 h T51A-04** Elastic and Anelastic Properties of an Olivine Crystal Determined by Means of the Resonant Sphere Technique: I Suzuki, Y Inoue, K Seya, H Oda

**0945 h T51A-05** Prediction of Inactive Modes and Bulk Moduli for Rutile-Types From Vibrational Spectra: A M Hofmeister

**1000 h BREAK**

**1015 h T51A-07** Nonhydrostatic and Nonequilibrium Thermodynamics of Rocks: I Shimizu

**1030 h T51A-08** Pressure Derivatives of Elastic Constants of Single Crystal MgO and MgAl2O4: A Yoneda

**1045 h T51A-09** Transformation Mechanism of Forsterite to Spinel Structures Under Distinctive Stress Conditions: K Fujino, T Irifune

**1100 h T51A-10** Determination of Phase Boundary of Rutile-AlphaPbO<sub>2</sub> Transition in TiO<sub>2</sub>: M Akaogi, K Kusaba, J Susaki, T Yagi, M Matsui, T Kikegawa

**1115 h T51A-11** Applicability of Oxygen Proper Solid Electrolyte to High Pressure Research: A Yasuda, T Fujii

**1130 h T51A-12** Estimation of Supplied Impact Sites From Density and Composition of Plagioclase Feldspar: Y Miura

**1145 h T51A-13** Different An Contents and Crystallization Ages Among Terrestrial, Meteoritic, Martian and Lunar Plagioclase Feldspars: Y Miura

**V51A SFK: Large Hall Fri 0830 h**  
**Geodynamics and Evolution of the Earth I (joint with P,S,T)**  
**Presiding: T Matsui, Univ of Tokyo; D J Stevenson, Caltech**

- 0830 h V51A-01** On the Temporal Variation of the Impact Flux of the Moon: S Sugita, T Matsui  
**0845 h V51A-02** *INVITED* Differentiation, Convective Mixing and Impact Stirring in the Early Earth: Y Abe  
**0905 h V51A-03** Thermal Equilibration of the Earth Following a Giant Impact: T Spohn, G Schubert, M Ogawa  
**0925 h V51A-04** Global Magma Ocean—Formation Mechanism and Constraints: S Sasaki  
**0940 h V51A-05** A Possible Role of Heavy Bombardments on the Origin and Evolution of Continents: T Matsui, K Kuramoto

<b>1010 h</b>	<b>BREAK</b>
<b>1025 h V51A-08</b> <i>INVITED</i> Core Formation and the Nature of the Core-Mantle Boundary Regions: D J Stevenson	
<b>1050 h V51A-09</b> Numerical Simulation of Rayleigh-Taylor Instability and Its Application to Formation of the Earth's Core: R Honda, H Mizutani	
<b>1105 h V51A-10</b> Hydrodynamic Stability of the Thermal and Compositional Boundary Layer at the CMB: Y Muromachi, M Kumazawa	
<b>1120 h</b> WITHDRAWN	Separation of Earth in DISCUSSION
<b>1140</b>	

**V51B SFK: Middle Hall Fri 0830 h**  
**Petrologic Studies of Volcanoes I (joint with S)**  
**Presiding: T Yanagi, Kyushu Univ; M F J Flower, Univ of Illinois**

- 0830 h V51B-01** *INVITED* Style of Silicic Volcanism in the Snake River Plain—Yellowstone Hotspot Track: A Petrologic Overview: N Honjo, W P Leeman  
**0850 h V51B-02** A Modeling of Sakurajima Volcano: T Kobayashi  
**0905 h V51B-03** *INVITED* Coupled Chambers and Repeated Eruptions of Sakurajima Volcano: T Yanagi  
**0925 h V51B-04** Multi-Active Volcanic Group Generated in a Slightly Tensile Stress Field: T Kagiyama, Y Ida, M Yamaguchi, M Masutani  
**0940 h V51B-05** Thermal Structure Beneath Kuju Volcano, Central Kyushu, Japan: S Ehara  
**0955 h V51B-06** Velocity Structure in the Unzen Volcanic Region, Southwest Japan: S Ohmi, H Shimizu

<b>1010 h</b>	<b>BREAK</b>
<b>1025 h V51B-08</b> <i>INVITED</i> Decompression Melting Beneath Stretched Lithosphere: Hainan Island Basalts, South China: M F J Flower, K Tu, M Zhang, G H Xie	
<b>1045 h V51B-09</b> Two Types of the Cenozoic Alkali Basalts in SW Japan, and Their Source Mantle: N Fujibayashi, T Nagao, H Kagami	

- 1100 h V51B-10** Temporal Variations of Magmas From the Young Somma to the Central Cone Stages of Hakone Volcano, Japan: Y Hirata  
**1115 h V51B-11** A Petrologic Model for Northern-Yatsugatake Volcanoes, Central Japan: M Nakamura  
**1130 h V51B-12** Two Reservoir System Beneath Asama Volcano, Central Japan, as Revealed by Leveling Survey: T Miyazaki

## Friday P.M.

**Paper Numbers.** A paper number designates the section, or other sponsoring group, and chronology of the presentation. Sample **T52A-01**.

Section	Day	Time	Ses-	Sequen-
			sion	ce in Session
T	2 = Tues.	1 = AM	A	01
	3 = Wed.	2 = PM	B	
	4 = Thur.		C	
	5 = Fri.		D	
	6 = Sat.			

Thus, **T52A-01** = Tectonophysics, Friday, PM, concurrent session A, first paper in that session.

**G52A** SKC: 21 Fri 1330 h

**Western Pacific GPS** (*joint with T*)

**Presiding:** I Murata, Univ of Tokyo; M Bevis, North Carolina State Univ

**1330 h G52A-01 INVITED** The Southwest Pacific GPS Project: Monitoring Crustal Dynamics and the Earthquake Cycle in an Area of Rapid and Complex Plate Motions: M Bevis, J Recy

**1400 h G52A-02 INVITED** Geodetic Studies of Oblique Plate Convergence in Sumatra: Y Bock, R McCaffrey, J Rais, I Murata

**1430 h G52A-03** Southwest Japan GPS Campaign SWJ9001—Philippine Sea Plate GPS: K Hirahara

**1445 h G52A-04** A GPS Study of the Philippine Sea Plate: J Beavan, C H Scholz, I Murata, T Kato, H Ishii, D M Davis, S W Roecker, K Hirahara, T Tamaka

**1500 h** **BREAK**

**1515 h G52A-06** Crustal Movement Observations Caused by Subduction of the Philippine Sea Plate in Kii Peninsula and Shikoku, Southwestern Japan: T Tanaka, M Kato, K Hirahara, Y Hosoi, T Tabei

**1530 h G52A-07** Preliminary Results of Crustal Motion Monitoring by GPS in Central Japan: F Kimata, M Nakamura, R Miyajima, T Okuda, Y Sumino, I Fujii, M Satomura, Y Sasaki, Y Sasaki

**1545 h G52A-08** GPS Observation in Tohoku District, Northeastern Japan—Results of 1988-1989 Observations: S Miura, S Nakao, K Hashimoto, T Sato, S Hori, E Murakami, K Tachibana, T Kono, K Nida

**1600 h G52A-09** The Sagami Bay GPS Campaign in the South Kanto, Japan: T Kato

**1615 h G52A-10** GPS Campaigns in the Hokuriku District, Central Japan: T Kato, A Takeuchi, Y Yabuta, K Hirahara, Y Kono, T Nagao, S Okubo, K Kawai, T Miyaji

**1630 h G52A-11** GSI's Regional GPS Tracking Network in Japan: H Tsuji, M Murakami

**H52A** KNK: Fuyo B Fri 1330 h

**Stable and Radioactive Isotopes in Hydrology II**

**Presiding:** N Tase, Univ of Tsukuba; W Wood, USGS, Reston

**1330 h H52A-01 INVITED** Methane in the Crystalline Environment The Case for Abiogenic Synthesis: B S Lollar, S K Frape, P Fritz, S A Macko, J A Welhan

**1355 h H52A-02 INVITED** Delta<sup>15</sup>N Studies of Groundwater Nitrate Transport Through Macropores in a Mantled Karst Aquifer: N C Krothe

**1420 h H52A-03 INVITED** <sup>11</sup>B/<sup>10</sup>B Isotopic Ratio for Environmental, Geochemical, and Hydrologic Application: R L Bassett, G R Davidson

**1445 h H52A-04** Geochemical Study of Natural Groundwater Recharge in Semi-Arid Inland of Tanzania: M Hayashi

**O52A** KNK: Aioi Fri 1330 h

**Western Boundary Currents I**

**Presiding:** D Hu, Academia Sinica; W S Chuang, Taiwan National Univ

**1330 h O52A-01** Subtropical Mode Water in the North Pacific Ocean: T Suga, K Hanawa

**1350 h O52A-02 INVITED** Temperature Distributions Near the Kuroshio: F Bingham

**1420 h O52A-03** The Structure of the Kuroshio Front off From Boso to Joban Coast: H R Shin, Y Nagata

**1440 h O52A-04 INVITED** The Kuroshio in the East China Sea: A Three-Dimensional Hydrographic Inversion: D Roemmich, B Cornuelle

**1510 h** **BREAK**

**1525 h O52A-06** Effects of Coastal Irregularity on the Flow Over a Continental Slope: H Nishigaki, N Imasato, T Awaji

**1545 h O52A-07** Spatial and Temporal Variability of Volume Transport of the Kuroshio in the East China Sea: H Ichikawa, R C Beardsley

**1605 h O52A-08** Statistical Features of the Turbulent Flow of the Kuroshio: K Rikiishi

**1625 h O52A-09** Blocking of an Oceanic Front: Eddy Branching of the Kuroshio: L Y Oey, P Chen

**1645 h O52A-10** Southward Intrusion of the Intermediate Oyashio Water Along the Coast of the Boso Peninsula, Japan: S K Yang, Y Nagata, K Taira

**S52A** SKC: Large Hall Fri 1330 h

**Dynamics and Structure of Plate Boundaries IV** (*joint with T*)

**Presiding:** N Hirata, Chiba Univ

**1330 h S52A-01** Gravity Anomalies, Their Gradients, and Isostasy Over the Japanese Islands: Y Kono, M Awara, N Furuse

**1345 h S52A-02** Geophysical Research on the Structure of Oghchon Belt, Korea: S Nishimura, K D Min, T Mogi, J Nishida, S C Shin

**1400 h S52A-03** Gravity Anomalies and Structure of the Ulleung Basin, East Sea (Sea of Japan): M Suh, B C Suk, S R Kim, K Y Kim

**1415 h S52A-04** Digital Broadband Borehole Seismometer System in ODP Hole 794D in the Japan Sea: K Suyehiro, T Kanazawa, N Hirata

**1430 h S52A-05** High Resolution Seismic Crustal Structure in the Northern Yamato Basin of the Japan Sea by an Array of OBSs and Downhole Seismometer at ODP Site 794D: M Shinohara, N Hirata, H Kinoshita, T Kanazawa, K Suyehiro, H Nanbu, S Abe

**1445 h S52A-06** Ocean Bottom Seismometer Measurement of the 1989 DELP Experiment in the Vicinity of T-T-T Triple Junction off Boso Peninsula, Japan: N Hirata

**1500 h** **BREAK**

**1515 h S52A-08** Network MT Measurement in the Eastern and Central Parts of Hokkaido, Northern Japan: M Uyeshima, H Utada, T Kawase, S Uyeda, Y Nishida

**1530 h S52A-09** Ongoing Ophiolite Emplacement—An Example of the Okushiri Ridge, off Northwestern Hokkaido, Japan: H Tokuyama, W Soh, S Kuramoto, S Miyashita, K Monma, T Tanaka, H Hotta

**1545 h S52A-10** Waveform Inversion for Vertical Velocity Structure of the Crust and Uppermost Mantle: T Shibutani, K Hirahara

**1600 h S52A-11** Reflection Survey on Osaka Basin Structure: Y Iwasaki, S Sawada, T Kagawa, N Matsuyama, K Ohsima

**S52B SKC: 32.33 Fri 1330 h**  
**Dynamics and Structure of the Deep Interior II**  
(joint with G,GP,T,V)

**Presiding:** A M K Szeto, York Univ

**1330 h S52B-01** Detection of Core Modes of the Earth's Free Oscillation Using a Superconducting Gravimeter Record: Y Imanishi, M Kumazawa, T Sato, M Ooe

**1345 h S52B-02** Variations of the Vertical and Thermal Instability at the CMB: C Kakuta

**1400 h S52B-03** The Convective Velocity of the Outer Core: S Yoshida, M Kumazawa

**1415 h S52B-04** On the Nature of Fluid Motion in the Outer Core: Y Honkura, H Takayanagi

**1430 h S52B-05** Fluid Motion in the Earth's Outer Core Estimated for a Strong Toroidal Magnetic Field Model: M Matsushima, Y Honkura

**1445 h** **BREAK**

**1500 h S52B-07** The Sixty Year Variation and Fluid Motion Beneath the Core-Mantle Boundary: Y Yokoyama, T Yukutake

**1515 h S52B-08** Application of Computer Algebra to Kinematic Dynamos: T Nakajima, M Kono

**1530 h S52B-09** A New Multipole Representation of the Geomagnetic Field: Y Sano, M Sugiura

**1545 h S52B-10** Torque Balance of the Inner Core: A M K Szeto

**SP52A KNK: Kaga Fri 1330 h**  
**Highlights of the EXOS-D, Viking, & DE Projects II**  
**Presiding:** T A Potemra, APL/Johns Hopkins Univ

**1330 h SP52A-01** INVITED Mid-Altitude Signatures of the Dayside Magnetospheric Boundary Layers: Results From the Hot Plasma Instrument on Board Viking: J Woch, R Lundin

**1400 h SP52A-02** INVITED Results of EXOS-D (Akebono) Satellite for Auroral Particle Acceleration and Plasmasphere Responses to the Magnetospheric Activities: H Oya

**1430 h SP52A-03** Electrostatic Component of AKR Found in the Source Region: A Morioka, H Oya, K Kobayashi

**1445 h SP52A-04** The Effect of Non-Uniform Media in the Source Regions of Auroral Kilometric Radiations: K Kobayashi, H Oya

**1500 h** **BREAK**

**1520 h SP52A-06** Generation Mechanism of Broadband Electrostatic Bursts Found by Akebono (EXOS-D) Satellite in the Polar Magnetosphere: H Miyaoka, H Oya, A Morioka, H Fukunishi, T Mukai, T Obara

**1535 h SP52A-07** Akebono Observation of HIPAS VLF Modulation Signal: I Kimura, M Yamamoto, K Ishida, A Wong, T Okada, I Nagano, K Hashimoto

**1550 h SP52A-08** VLF and ELF Wave Phenomena in Polar Region Observed by the Satellite Akebono: A Sawada, S Yajima, Y Kasahara, M Yamamoto, I Kimura, K Hashimoto, I Nagano, T Okada

**1605 h SP52A-09** Amplitude and Phase Variation of Omega-Triggered Emissions Observed by the Akebono Satellite: Y Kishi, M Yamamoto, A Sawada, I Kimura

**1620 h SP52A-10** Ion Cyclotron Wave Noises in the Magnetic Equatorial Region Observed by the Satellite Akebono: Y Kasahara, A Sawada, M Yamamoto, I Kimura, K Hashimoto, I Nagano, T Okada, K Hayashi

**1635 h SP52A-11** Magnetospheric Electric Field Configuration Associated With Electron Precipitation Structures: R A Hoffman, J A Slavin, W B Hanson, R A Heelis, N C Maynard, M Sugiura

**SP52B KNK: Fuyo A Fri 1330 h**  
**Stratospheric Ozone & Atmospheric Chemistry II**  
(joint with A)

**Presiding:** Y Kondo, Nagoya Univ

**1330 h SP52B-01** Global Ozone Distribution in the Stratosphere Based on the EXOS-C Satellite Data: M Koike, T Ogawa, K Suzuki

**1345 h SP52B-02** Polar Stratospheric Aerosol Enhancement and Geochemical Cycle of Nitric Acid: Aerosol Effect on Ozone Hole: Y Iwasaka, M Hayashi, Y Kondoh, A Matthews

**1400 h SP52B-03** Antarctic Ozone Hole in 1989 Observed at Syowa Station and by Nimbus 7/TOMS: H Kanazawa, S Kawaguchi

**1415 h SP52B-04** Zonal Wind Changes Relating to the Development of the Ozone Hole: K Kawahira, T Hirooka

- 1430 h SP52B-05** Year-to-Year Changes of the Tropopause Height at Syowa, Antarctica: K Kawahira, K Kondoh, Y Iwasaka  
**1445 h SP52B-06** The Relationship Between Total Ozone and Stratospheric Temperature at Syowa Station, Antarctica: S Chubachi

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- 1500 h** **BREAK**
- 1515 h SP52B-08** Unmanned Aircraft: New Tools for Atmospheric Research in the 1990s: J G Anderson, J S Langford  
**1530 h SP52B-09** Nitric Oxide and Ozone Measurements From Mid-Latitude to Equator Over the West Pacific: Y Kondo, Y Iwasaka, A Iwata, T Ogawa, Y Sugimura, Y Makino  
**1545 h SP52B-10** Global Distribution of Atmospheric Ozone and Aerosol During the INSTAC Campaign: Y Makino, Y Tsutsumi, M Ikegami, K Okada, Y Zaizen, Y Nikaido  
**1600 h SP52B-11** Long-Term Trends and Seasonal Variations of Atmospheric Methane in Japan: H Tsuruta  
**1615 h SP52B-12** Stratospheric Sulfuric Acid Particles Transported Into the Troposphere Through Tropopause Folding: M Yamato  
**1630 h SP52B-13** UV Photolysis and Microbial Reduction as Major Sinks of Nitrous Oxide With Emphasis on Kinetic Nitrogen Isotope Discriminations: N Yoshida, H Morimoto, S Matsuo

**SP52C KNK: Horai Fri 1330 h**  
**Solar Wind Interactions With Venus (joint with P)**  
*Presiding: H Fukunishi, Tohoku Univ*

- 1330 h SP52C-01** *INVITED* Pickup Ions at Venus: Present Understanding and Unanswered Questions: J G Luhmann  
**1355 h SP52C-02** Three-Dimensional Magnetohydrodynamic Simulation of the Interaction of the Solar Wind With the Venus Ionosphere: T Ogino, A Sakurai  
**1410 h SP52C-03** A Study of Interplanetary Magnetic Flux Ropes Using the PVO Magnetometer Data: K Marubashi  
**1425 h SP52C-04** *INVITED* Physics of the Venus Ionosphere: What We Think We Know and Don't Know: T E Cravens  
**1450 h SP52C-05** Statistical Properties of Impulsive Signals Observed in the Nightside Ionosphere of Venus: R J Strangeway, C M Ho, C T Russell

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- 1505 h** **BREAK**
- 1520 h SP52C-07** Plasma Waves Observed in the Electron and Ion Foreshock of Venus: G K Crawford, R J Strangeway, C T Russell  
**1535 h SP52C-08** *INVITED* Venus Orbiter Program in Middle of 1990s Using Japanese Spacecraft: H Oya  
**1600 h SP52C-09** Development of EUV Spectrometer Equipped With Absorption Cells for D/H Ratio Measurement: T Kawahara, S Okano, H Fukunishi  
**1615 h SP52C-10** Venus Mantle—Mars Planosphere: What are the Similarities?: A F Nagy, T I Gombosi, K Szego, R Z Sagdeev, V D Shapiro, V I Shevchenko

**T52A SFK: F Fri 1330 h**  
**Rheology and Heat Flow**  
*Presiding: H Sato, Okayama Univ*

- 1330 h T52A-01** Thermal Structure and Magma Generation in Island Arc Region From Laboratory and Seismic Anelasticity Studies: H Sato, I S Sacks  
**1345 h T52A-02** Lateral and Vertical Viscosity Profiles in the Upper Mantle Determined From Seismic Anelasticity Structures: H Sato  
**1400 h T52A-03** Interpretation of Heat Flow vs. Curie Isotherm Depth Relationship by a Simple Three-Layer Thermal Model: O Matsubayashi, K Yasukawa, Y Yamada  
**1415 h T52A-04** Temperature Structure Under the Japan Arc and the Intraplate Tectonics: Y Furukawa  
**1430 h T52A-05** Geothermal Study of the Sengen-Hachimantai Area by Deep Drillholes and Geophysical Methods—Case of Large-Scale Volcanic Zone in the NE Japan Arc: O Matsubayashi, S Suto

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- 1445 h** **BREAK**
- 1500 h T52A-07** Stress Interpretation From Borehole Breakouts at Hijiori Hot Dry Rock Experiment Field, Yamagata, Japan: H Ito, C A Barton  
**1515 h T52A-08** The Power Source of Continental Drift: H Kin-no

**V52A SFK: Large Hall Fri 1330 h**  
**Geodynamics and Evolution of the Earth II (joint with P,S,T)**  
*Presiding: E Ohtani, Tohoku Univ; C R Agee, Univ Bayreuth*

- 1330 h V52A-01** *INVITED* High Pressure Geochemistry of Cr, V Mn and O: Implications for the Formation of Planetary Cores and Origin of the Moon: A E Ringwood, W Hibberson  
**1355 h V52A-02** Carbon as a Light Element in the Outer Core—High Pressure Melting Experiments in the System, Fe-C: Y Hirayama, T Fujii, K Kurita  
**1410 h V52A-03** *INVITED* Melting of the Allende CV3 Meteorite up to 25 GPa: Importance of Magnesiowustite in Earth Differentiation: C B Agee  
**1430 h V52A-04** *INVITED* Calcium Perovskite Controlling Fractionation of Basaltic Material and Chemical Heterogeneity of the Mantle: T Kato  
**1450 h V52A-05** Mechanisms and Kinetics of the Olivine-Spinel Transformation in Subducting Slabs: D C Rubie, S L Webb, A J Brearley

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- 1510 h** **BREAK**
- 1525 h V52A-07** Phase Equilibria of Mantle Minerals up to 7.5 GPa: T Kawasaki  
**1540 h V52A-08** On the Formation of Carbon Reservoir in the Earth's Mantle: K Kurita, T Fujii  
**1555 h V52A-09** Stabilities of Carbonate in the Peridotite at High Pressures: Implications for a Carbon-Reservoir in the Mantle: T Katsura, E Ito, S Akimoto  
**1610 h V52A-10** *INVITED* Komatiite Genesis and Thermal State of the Early Earth: E Ohtani, J Moriyama, N Yurimoto

**1630 h V52A-11 INVITED** Reconstruction of the Archean Earth: E Takahashi

**1650 h**

DISCUSSION

**V52B SFK: Middle Hall Fri 1330 h**  
**Petrologic Studies of Volcanoes II (joint with S)**

**Presiding:** T Hasenaka, Tohoku Univ; R J Arculus, Univ of New England

**1330 h V52B-01 INVITED** A Model for a Quaternary Andesitic Volcano: Ruapehu, New Zealand: B F Houghton, W R Hackett

**1350 h V52B-02** A First Approximate Petrological Model of Minamigassan Activity, Nasu Volcanic Group, NE Japan: M Ban

**1405 h V52B-03 INVITED** Tholeiitic and Calc-Alkaline Magma Series at Adatara Volcano, Northeast Japan: Mechanism of Evolution and Petrological Relationship: A Fujinawa

**1425 h V52B-04** Magmatic Evolution of Zao Volcano, Northeast Japan: A Sakayori

**1440 h V52B-05 INVITED** Bimodal Volcanism of Moriyoshi Volcano, Northeastern Japan: M Nakagawa

**1500 h V52B-06** Volcanism Since 3 Ma in Aizu-Shirakawa District, Tohoku, Japan: I Moriya

**1515 h BREAK**

**1530 h V52B-08 INVITED** Klyuchevskoy (Kamchatka), the World's Most Active arc Volcano is the Product of a non-Steady State RTF Magma Chamber: R J Arculus, A B Kersting, V M Okrugin, A P Khrenov, S A Fedotov

**1550 h V52B-09 INVITED** Contrasting Monogenetic Volcanisms in Michoacan-Guanajuato, Mexico: Cinder Cone Group vs. Shield Volcano Group: T Hasenaka

**1610 h V52B-10** Magma Chamber Beneath Slow-Spreading Ridge: Petrology of Fe-Ti Oxide Gabbros From ODP Leg 118, Hole 735B, South West Indian Ridge: K Ozawa, P S Meyer

**1625 h V52B-11** Origin of Olivine Cumulate in the Toba Ultramafic Complex, Central Japan: H Ozawa

**1640 h V52B-12** High Magnesium Primary Magmas From Haleakala Volcano, Hawaii: C Y Chen

Saturday A.M.

**Paper Numbers.** A paper number designates the section, or other sponsoring group, and chronology of the presentation. Sample **T61A-01**.

Section	Day	Time	Session	Sequence in Session
T	2 = Tues.	1 = AM	A	01
	3 = Wed.	2 = PM	B	
	4 = Thur.		C	
	5 = Fri.		D	
	6 = Sat.			

Thus, **T61A-01** = Tectonophysics, Saturday, AM, concurrent session A, first paper in that session.

**G61A SFK: F Sat 0830 h**

**Seismotectonic Studies I**

**Presiding:** T Tanaka, Kyoto Univ

**0830 h G61A-01 INVITED** Crustal Deformation in Central Japan Measured by GPS Fixed-Point Network: S Shimada, Y Bock, S Sekiguchi, S Ohmi, Y Fujinawa, T Eguchi, Y Okada

**0900 h G61A-02** GPS Observation of Crustal Movements Associated With the 1989 Seismic Swarm and Volcanic Eruption Around Ito: Y Fujinawa, S Sekiguchi, S Ohmi, S Shimada, T Eguchi, Y Okada

**0915 h G61A-03** Development of a Permanent GPS Geodetic Array in Southern California for Continuous Monitoring of Crustal Motion: U J Lindqwister, Y Bock

**0930 h G61A-04** Application of Advanced GPS Monitoring System Techniques to Tectonic Studies: J W Ladd

**0945 h G61A-05** Effects of Groundwater Flow on Strain Measurements: S Takemoto

**1000 h BREAK**

**1015 h G61A-07** High Precision EDM Observations Around the Imperial Fault and the Heber Geothermal Field, S. California, Using a ME300 Mekometer/CR204 Geodimeter: P M Fleming, R G Mason

**1030 h G61A-08** GPS Measurement of Crustal Deformation in the Northern Cascadia Subduction Zone: H Dragert, J Kouba, M Lisowski

**1045 h G61A-09** GPS Solutions of Post-Seismic Crustal Strain Following the Loma Prieta, California Earthquake of October 1989: G Blewitt, K J Hurst

**1100 h G61A-10** Comparison of Total Electron Content Between GPS Dual Frequency Method and Faraday Rotation Method: A Yamamoto, M Imae, C Miki, H Minakoshi, E Kawai, F Takahashi

**1115 h G61A-11** Precise GPS Dual Frequency Receiver for Measuring Ionospheric Total Electron Content by Using Cross Correlated Signal Phase: M Imae, C Miki, H Kiuchi, A Kaneko

**1130 h G61A-12** An Estimation of Excess Path Delay Based on JMA Global Analysis Data: R Ichikawa, M Kasahara, I Naitoh

**1145 h G61A-13** Plate Motion Parameters Estimated From Changing Rates of VLBI and SLR Baseline Lengths: K Sato

**1200 h G61A-14** Deformation of the Aquifer due to Well Pumping: T Maruyama

**H61A KNK: Fuyo B Sat 0830 h**  
**Subsurface Transport: New Measurement Techniques**

*Presiding:* I Kaihatsu, Hiroshima Univ; F J Molz, Auburn Univ

**0830 h H61A-01** Physical Controls on Contaminant Migration and Recovery in an Alluvial Fan Setting: J A Conte, M M Mitchell, P T Regan

**0845 h H61A-02** *INVITED* Field Measurements of Dispersion Parameters: G L Moltyaner

**0910 h H61A-03** *INVITED* Hydraulic Conductivity Measurement as a Function of Vertical Position and Contaminant Transport Modeling: F J Molz, O Guven, J G Melville

**0935 h H61A-04** An Applicability of Directional Velocimeter With a CCD Camera to Groundwater Flow: Y Ando, T Tamura

**0950 h H61A-05** *INVITED* Development of a Groundwater Flow Velocity and Direction Meter Using Distilled Water as a Tracer in a Single Borehole: S Komatsuda, O Sibutaini, Y Hirata, M Hirayama, K Gotoh

**1015 h BREAK**

**1030 h H61A-07** Determination of Subsurface Water Flux Using Temperature: M Taniguchi

**1045 h H61A-08** Thermal Energy Storage Experiments in an Unconfined Aquifer at Sanrihama Dune: I Kobayashi, A Inamoto, T Hashida, K Fujinawa

**1100 h H61A-09** Analysis of Frequency Dependent Fluctuations of Groundwater Discharge Induced by Earth Tides and Atmospheric Loading: N Koizumi

**1115 h H61A-10** *INVITED* An Investigation Method of Groundwater Flow in a Rock Mass Using Resistivity Tomography: K Ichikawa, H Ishibashi

**1140 h H61A-11** *INVITED* In Situ Column Method for Evaluation of Biotransformation Rates: R W Gillham

**1205 h H61A-12** *INVITED* Bioavailability of Organically Bound Micropollutants: J T Novak, K G Robinson

**O61A KNK: Aioi Sat 0830 h**  
**Western Boundary Currents II**

*Presiding:* F Bingham, Scripps Inst. of Oceanogr.; J H Yoon, Kyushu Univ

**0830 h O61A-01** *INVITED* Currents off Mindanao: D Hu, M Cui

**0900 h O61A-02** The Structure and Transport of Low-Latitude Western Boundary Currents in the North Pacific During June and July 1988: P Hacker, E Firing, R Lukas

**0920 h O61A-03** Sea-Surface Dynamic Topography in the Western North Pacific Derived From Satellite Altimetry Data: S Imawaki, K Ichikawa

**0940 h O61A-04** *INVITED* Kuroshio/Oyashio Dynamics From 1/4° Models of the North Pacific: H E Hurlburt, E J Metzger, A J Wallcraft

**1010 h BREAK**

**1025 h O61A-06** Observations of Eddy Fields in the North-West Pacific by GEOSAT Altimetry: J Suwa, Y Okada, Y Sugimori

**1045 h WITHDRAWN** ce Height Variability

**1105 h O61A-08** Anomalous Southward Intrusion of the Oyashio East of Japan: Y Sekine

**1125 h O61A-09** Oceanic Circulations in the South Hemisphere: J Fukuoka

**S61A SFK: Middle Hall Sat 0830 h**

**Earthquake Prediction and Hazard Assessment I**

*Presiding:* C Kisslinger, Univ of Colorado

**0830 h S61A-01** Long-Term Prediction of an M 7-Class Disastrous "Odawara Earthquake" in the Izu Collision Zone, Central Japan: K Ishibashi

**0845 h S61A-02** Precursory Swarm of Moderate and Small Earthquakes in Northern Kinki District, Japan: K Ito

**0900 h S61A-03** Current Seismic Quiescence at Park-field, California: An Independent Indication of an Imminent Earthquake: M Wyss, P Bodin, R E Habermann

**0915 h S61A-04** Time Constants in Seismicity Pattern: T Tsukuda

**0930 h S61A-05** Changes in the Poisson Rate Prior to Major Earthquakes in Central Japan: M Imoto

**0945 h S61A-06** Characteristics of Distribution of Regional Earthquakes Before the Moderate and Strong Earthquakes: S Jungao

**1000 h BREAK**

**1015 h S61A-08** A Practical Approach to Identifying Foreshocks: Y Motoya

**1030 h S61A-09** Earthquake Hazard After a Main-shock in the Kanto-Tokai Districts, Japan: P A Reasenberg, Y Okada, F Yamamizu

**1045 h S61A-10** Prediction of and Hazard Assessment for Earthquakes and Tsunamis in the Japan Region: R Carmichael

**1100 h S61A-11** On Empirical Formula of Estimating Detailed Seismic Intensity on the 1983 Nihonkai Chubu Earthquake: M Nogoshi

**1115 h S61A-12** Earthquake Hazard Assessment of Damsites: Y Nakayama

**1130 h S61A-13** Automated Tsunami Warning Using Mantle Magnitudes and Tsunami Normal Mode Theory: J Talandier, E A Okal

**SP61A KNK: Kaga Sat 0830 h**

**Highlights of the EXOS-D, Viking, & DE Projects III**

*Presiding:* K Tsuruda, Inst. of Space and Astronaut. Sci.

**0830 h SP61A-01** k- and Poynting Vector of Omega Signals Observed by the Akebono Satellite: M Yamamoto, Y Ito, A Sawada, I Kimura, I Nagano, E Kennai, T Okada, K Hashimoto

**0845 h SP61A-02** Some Characteristics of Whistlers Observed by the Akebono Satellite: I Nagano, E Kennai, I Kimura, M Yamamoto, T Okada, K Hashimoto

**0900 h SP61A-03** Antenna Impedance Measurements by Akebono VLF Instruments: K Hashimoto, T Okada, I Nagano, M Yamamoto, I Kimura

**0915 h SP61A-04** INVITED Structures and Origin of Small-Scale Field-Aligned Currents Observed by the Akebono (EXOS-D) Satellite: H Fukunishi, T Mikai

**0945 h SP61A-05** Triaxial Search Coil Measurements of ELF Waves With EXOS-D: S Kokubun, M Takami, K Hayashi, H Fukunishi

**1000 h SP61A-06** Field-Aligned Particle Acceleration in Upward Field-Aligned Currents: R Fujii, H Fukunishi, S Kokubun, M Sugiura, T Mukai, N Kaya

**1015 h SP61A-07** Identification of the Charge Carriers of Field-Aligned Currents by the Akebono (EXOS-D) Satellite: Y Takahashi, H Fukunishi, R Fujii, T Mukai

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**1030 h BREAK**

**1050 h SP61A-09** Irregular Electric Field Observed Near Midnight Auroral Region: H Hayakawa, K Tsuruda, T Mukai, A Matsuoka, Y I Kohno, T Okada

**1105 h SP61A-10** Polar Cap Convection Related to the Polar Cap Arcs; Observations From the Akebono (EXOS-D): T Obara, T Mukai, H Hayakawa, S Machida, A Matsuoka, Y Kohno, K Tsuruda, A Nishida, N Kaya, T Okada

**1120 h SP61A-11** INVITED Characteristics of Low Energy Particles Observed by EXOS-D Satellite: N Kaya, T Mukai

**1150 h SP61A-12** EXOS-D Observations of Plasma Injection and Transport in the Dayside Polar Cusp: T Mukai, A Matsuoka, Y Saito, H Hayakawa, S Machida, K Tsuruda, A Nishida, N Kaya, E Sagawa, W Miyake, H Fukunishi

**1205 h SP61A-13** Alternation of Ion Conics and Beams Observed by Low Energy Particle Instrument on Board EXOS-D: W Miyake, E Sagawa, T Mukai, N Kaya, H Fukunishi

**SP61B KNK: Fuyo A Sat 0900 h**  
Substorms and Magnetosphere-Ionosphere Coupling Systems I

*Presiding:* Y Kamide, Kyoto Sangyo Univ; R L McPherron, Univ of California, LA

**0900 h SP61B-01** INVITED Solar Wind and IMF Effects on High-Latitude Ionospheric Plasma Convection: C R Clauer

**0925 h SP61B-02** INVITED Computer Simulation of Solar Wind-Magnetosphere-Ionosphere Interaction: K Watanabe

**0950 h SP61B-03** A Macroscopic Study of Generation of Field-Aligned Currents in Height Integrated Plasma Sheet Coupled With Ionosphere: M Yamauchi

**1005 h SP61B-04** INVITED The Role of Birkeland Currents in Substorms: T A Potemra

**1030 h SP61B-05** Observation of Surge-Associated Field-Aligned Currents at Geosynchronous Orbit: N Nishitani, T Oguti

**T61A SFK: Large Hall Sat 0830 h**

**Deep Earthquakes/Subduction Zones**

*Presiding:* S Kirby, USGS, Menlo Park; T Shimamoto, Tokyo Univ

**0830 h T61A-01** INVITED Transformation Faulting: A Physical Mechanism of Deep EQs: S H Kirby

**0845 h T61A-02** INVITED Rheological Framework for Comparative Subductology: T Shimamoto, T Seno

**0900 h T61A-03** INVITED Faulting Accompanying the Olivine to Spinel Transition Under Stress: A New Mechanism for Deep-Focus Earthquakes: H W Green, P C Burnley

**0915 h T61A-04** A Test of the Anticrack Theory of Deep Earthquakes: Initial Results: H W Green, T E Young, D Walker, C Scholz, D Prior

**0930 h T61A-05** Kinetics of Dehydration, Fluid Flow and Reaction-Enhanced Ductility in a Subduction Zone: T Nishiyama

**0945 h T61A-06** INVITED Subducting Garnetite Sheet of 450-750 km and Deep Focus Earthquakes: M Toriumi

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**1000 h BREAK**

**1015 h T61A-08** Preferred Orientation of Modified Spinel Type  $Mn_2GeO_4$  Under Nonhydrostatic Stress: S Tanaka, C Hasegawa, A Fujimura

**1030 h T61A-09** Study on Earthquakes Within a Subducting Slab in the Hindu Kush Region: N Sugi, M Kikuchi

**1045 h T61A-10** The Large ScSp/ScS Amplitude Ratio and Its Relevance to the Structure of the Slab/Mantle Interface: G Helffrich, S Stein, B Wood

**1100 h T61A-11** On the Origin of Non-Double Couple Moment Tensors of Deep Earthquakes: H Kawakatsu, K Kuge

**1115 h T61A-12** Lower Mantle High-Velocity Zone Beneath the Okhotsk Sea as Inferred From Travel Time Analysis of the WWSSN Data: K Okano, D Suetsugu

**1130 h T61A-13** Intermediate-Depth Earthquakes and Upper Mantle Structure Beneath the Northeastern Japan Arc: T Matsuzawa

**1145 h Subduct WITHDRAWN**  
Subduct *WITHDRAWN*  
Depths of  
omon Islands:  
P R Lunugamvehera, et al.

**V61A SKC: Large Hall Sat 0830 h**

**Geodynamics and Evolution of the Earth III (joint with P,S,T)**

*Presiding:* A Zindler, LDGO; I Kaneoka, Univ of Tokyo

**0830 h V61A-01** Noble Gas Constraints on the Chemical Structure of the Mantle: I Kaneoka

**0845 h V61A-02** Noble Gases in Submarine Glasses From MOR's and Loihi Sea Mount: Constraints on Early History of the Earth: H Hiyagon, M Ozima, S Zashu, H Sakai

**0900 h V61A-03** INVITED The Origin, Evolution and Interaction of Chemically Distinct Mantle Components: A Zindler, K H Park

**0920 h V61A-04 INVITED** Isotopic Evidence for Recycled Crust in the Sources of the Cook-Austral Island Rocks: **M Tatsumoto, Y Nakamura**

**0940 h V61A-05 INVITED** Isotopic Evolution of an Earth With a Layered Mantle: An Internally Consistent Model: **R S J Lambert**

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**1000 h BREAK**

**1015 h V61A-07** Noble Gases in Carbonatites and Their Implications on the Subcontinental Upper Mantle: **T Sasada, H Hiyagon**

**1030 h V61A-08** Anomalous Neon and Xenon Isotopes in Some Crustal Rocks: **S Azuma, M Ozima, H Hiyagon**

**1045 h V61A-09 INVITED** Crustal growth in West-Africa at 2.1 Ga: **F Albarede, W Abouchamy, M Boher, A Michard, J P Milesi, N T arndt, D Lowe**

**1105 h V61A-10 INVITED** Mantle Pb Isotopes: Subduction of Continental Crust, a Geochemical Mystery Tour: **E Jagoutz**

**1125 h V61A-11 INVITED** 3.5 Ga Oceanic-Like Lithosphere: Some Chemical and Geodynamic Constraints on (Archean) Earth Models: **M J de Wit, M Tredoux, R Hart**

**1145 h V61A-12** Mantle Plumes, Mantle Stirring and Hotspot Chemistry: **G Davies**

**1200 h DISCUSSION**

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**Saturday P.M.**

**Paper Numbers.** A paper number designates the section, or other sponsoring group, and chronology of the presentation. Sample **T62A-01**.

Section	Day	Time	Session	Sequence in Session
T	2 = Tues.	1 = AM	A	01
	3 = Wed.	2 = PM	B	
	4 = Thur.		C	
	5 = Fri.		D	
	6 = Sat.			

Thus, **T62A-01** = Tectonophysics, Saturday, PM, concurrent session A, first paper in that session.

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**G62A SFK: F Seismotectonic Studies II** **Sat 1330 h**

**Presiding: E Pavlis**, NASA/Goddard Space Flight Center

**1330 h G62A-01** On-Going Distance Changes Between Japan and China From Geodetic Very Long Baseline Interferometry: **K Heki, S Hama**

**1345 h G62A-02** Constraints From VLBI on Pacific-North America Motion and Deformation: **D F Argus, R G Gordon**

**1400 h G62A-03** SLR and VLBI Results for Back Arc Stations: **C G A Harrison, S Robaudo**

**1415 h G62A-04** Tectonic Motions From Satellite Laser Ranging to LAGEOS: **D E Smith, R Kolenkiewicz, P J Dunn, M H Torrence, J W Robbins, S M Klosko, R G Williamson, E C Pavlis, N B Douglas, S K Fricke**

**1430 h G62A-05** Test VLBI Experiments With an Antarctic Station: **N Kurihara, M Sato, F Takahashi, T Kondo, Y Takahashi, H Kiuchi, A Kaneko, Y Sugimoto, S Hama, D L Jauncey, J Reynold, N Kawaguchi, M Ejiri**

**1445 h G62A-06** VLBI Experiments Using the Highly Transportable VLBI Station: **J Amagai, H Kiuchi, A Kaneko, Y Sugimoto**

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**1500 h BREAK**

**1515 h G62A-08** Western Pacific VLBI Network: (1) Overviews and Introduction of Minami-Torisima (Marcus) VLBI Station: **F Takahashi, C Miki, T Yoshino, E Kawai, K Imamura, Y Sugimoto, J Amagai, H Kiuchi, T Kondo, K Heki**

**1530 h G62A-09** Western Pacific VLBI Network: (2) The Main Station With 34 m Antenna at Kashima: **Y Koyama, H Takaba, M Imae, Y Sugimoto**

**1545 h G62A-10** Western Pacific VLBI Network: (3) The Result of the First Experiment: **S Hama, F Takahashi, C Miki, J Amagai, Y Takahashi, Q Ling**

**1600 h G62A-11** GSI's VLBI Observations: **S Matsuzaka, M Tobita, Y Nakahori**

**1615 h G62A-12** A New VLBI Data Acquisition System, K-4: **H Kiuchi, S Hama, J Amagai, Y Abe, Y Sugimoto**

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1630 h	G62A-13	Results of Test Observation at Tokyo SLR Station: H Kunimori, E Kawai, F Takahashi, T Itabe, T Aruga, A Yamamoto	1530 h	O62A-07	Sedimentation Rates and Fluxes in the Western Philippine Sea: R S Chen, Y Chung
1645 h	G62A-14	The Basic Positioning and Orbit Determination Experiments by the PRESTAR System: Y Sugimoto, H Kiuchi, A Kaneko, Y Takahashi, M Imae, T Yamazaki, K Kameyama, M Kuroda, M Uchino	1550 h	O62A-08	Vertical Transport of Organic Matter in the Trench Environment: N Handa, T Nakatsuka, M Itoho
H62A	KNK: Fuyo B	Sat 1330 h	1610 h	O62A-09	A Gamma-ray Spectral Survey on Giant Clam (Calyptogena Soyoae) Colonies Using the Submersible "SHINKAI 2000": N Yoshida, H Tsukahara
<b>Snow Hydrology and Spatial Scaling</b>			1630 h	O62A-10	INVITED Th234 Disequilibrium and New Production in the Eastern Equatorial Pacific: C L Wei, J W Murray
<i>Presiding: D Marks, NSI Environmental Sciences; K Tusima, Toyama Univ</i>			S62A	SFK: Middle Hall	Sat 1330 h
1330 h	H62A-01	INVITED Evaluation of Hydrologic Responses of Forested Watersheds Using an Energy-Driven Distributed Model: J D Lin, N P Nikolaidis	<b>Earthquake Prediction and Hazard Assessment II</b>		
1355 h	H62A-02	INVITED Coupling an Energy Balance Snowmelt Model to a Watershed Model: D Marks, D P Lettenmaier, L Vail	<i>Presiding: M Ohtake, Tohoku Univ</i>		
1420 h	H62A-03	Characterization of Monthly Precipitation Patterns in Mountainous Regions: J Dolph, D Marks, D Phillips	1330 h	S62A-01	On the Detectability of Self-Potential Variations Related to Tectonic Activities: T Mori, M Ozima, H Takayama
1435 h	H62A-04	Continuous Observations of Bottom-Melt and Percolated Meltwater During the Winter: Y Ujihashi, N Takase	1345 h	S62A-02	Anomalies of an Electric Field Under the Ground Before a Shallow Earthquake and an Eruption: K Takahashi, Y Fujinawa
<b>BREAK</b>			1400 h	S62A-03	LF Seismogenic Emissions Just Prior to Earthquake and Volcano Eruption and Their Prediction: T Yoshino, I Tomizawa
1450 h			1415 h	S62A-04	Observations of Possible Precursory Electromagnetic Wave Radiations Prior to Earthquakes or Volcanic Eruptions: Y Fujinawa, K Takahashi, T Kumagai
1505 h	H62A-06	INVITED Distributed Approach to Modeling the Chemical Composition of Snowmelt Runoff: R Bales, R Davis	1430 h	S62A-05	Measurements of Electron and Ion Emission From Fracture of Rocks Under Atmospheric Conditions: Y Enomoto, H Hashimoto
1530 h	H62A-07	Parameterization of Heterogenous Flow in Melting Snow Covers: P Marsh	1445 h	S62A-06	Individuality of Anomalous Bioelectric Potential of Silk Tree Prior to Earthquake: H Toriyama
1545 h	H62A-08	Fundamental Investigation on the Role for the Melting Rate of Snow by Atmospheric Factors: M Hasebe, T Kumekawa, M Hino	<b>BREAK</b>		
1600 h	H62A-09	Hydrologic Regime in Tundra Plain, Permafrost Regions, Alaska: K Nakao, E Tokunaga	1515 h	S62A-08	Precursory Deformation Expected From a Fault Model Into Which Rheological Properties of the Lithosphere Are Incorporated: T Yamashita, M Ohnaka
O62A	KNK: Aioi	Sat 1330 h	1530 h	S62A-09	Groundwater Anomalies Associated With Great Earthquakes of Low-Angle Thrust Type (II): The 1923 Great Kanto Earthquake: I Kawabe
<b>Biogeochemical Flux and Cycling</b>			1545 h	S62A-10	Time Series Analysis to Detect Coseismic Changes of Groundwater Level: N Matsumoto, G Kitagawa, M Takahashi
<i>Presiding: Y Suzuki, Meteorological Res. Inst.; J Murray, Univ of Washington</i>			1600 h	S62A-11	Tidal Responses and Earthquake-Related Changes in the Water Level of Deep Well: G Igarashi, H Wakita
1330 h	O62A-01	Pore Water Chemistry of Sediments From a Deep-Sea "Cold Seepage" Community off Hatsushima Island, Sagami Bay: T Masuzawa, N Handa, H Kitagawa, M Kusakabe	1615 h	S62A-12	Tidal Triggering of the 1989 Sanriku-Oki, Japan, Earthquakes: M Ohtake
1350 h	O62A-02	Carbonate Chemistry of the Wintertime Bering Sea Marginal Ice Zone: C T A Chen	SP62A	KNK: Kaga	Sat 1330 h
1410 h	O62A-03	Visualization of Biogeophysical Processes in the Northwestern Pacific Area by BGD3D Database and Graphics System: A Harashima, Y Kikuchi	<b>Highlights of the EXOS-D, Viking, &amp; DE Projects IV</b>		
1430 h	O62A-04	Descriptive Chemical Oceanography off Northeast Taiwan: The Comparisons Between Summer and Winter: C T A Chen, R Rou	<i>Presiding: G Gustafsson, Swedish Inst. of Space Physics</i>		
<b>BREAK</b>			1330 h	SP62A-01	EXOS-D Observations of the Ion Energy Dispersion in the Dawnside Auroral Region: M Hirahara, T Mukai, S Machida, H Hayakawa, K I Tsuruda, A Nishida, N Kaya, E Sagawa, M Miyake
1510 h	O62A-06	Comparative Study of Biogeochemical Data by Using Mean Oceanic Residence Time as a Standard: T Yamamoto, Y Otsuka, K Okamoto			

<b>1345 h</b>	<b>SP62A-02</b>	Upward Electron Beams at High Altitudes Over the Auroral Zone: <b>S Machida, T Mukai, H Hayakawa, T Obara, M Hirahara, Y Saito, A Matsuoka, K Tsuruda, A Nishida, N Kaya, E Sagawa, W Miyake, H Fukunishi</b>	<b>1450 h</b>	<b>SP62B-05</b>	Evidence of Free Energy Input Into the Plasmasphere in the Recovery Phase of Large Magnetic Storms Observed by PWS Onboard the EXOS-D Satellite: <b>H Oya, K Kobayashi, A Morioka, M Iizima</b>
<b>1400 h</b>	<b>SP62A-03</b>	<i>INVITED</i> Thermal and Suprathermal Ion Observations From the EXOS-D (Akebono) Suprathermal Mass Spectrometer (SMS): <b>B A Whalen, A W Yau, S Watanabe</b>	<b>1505 h</b>	<b>BREAK</b>	
<b>1430 h</b>	<b>SP62A-04</b>	Simultaneous, Mass-Resolved, Observations of Upflowing Ions From Akebono (EXOS-D) and Dynamics Explorer-1: <b>W K Peterson, A W Yau</b>	<b>1520 h</b>	<b>SP62B-07</b>	<i>INVITED</i> Generation of Field Aligned Electric Fields: <b>A Hasegawa</b>
<b>1445 h</b>	<b>SP62A-05</b>	Counter Streaming Ion Events Observed by Akebono: <b>E Sagawa, I Iwamoto, S Watanabe, B A Whalen, A W Yau</b>	<b>1545 h</b>	<b>SP62B-08</b>	Interaction of the Auroral Field Current With the Ionosphere: <b>T K Nakamura, T Tamao, J R Kan</b>
<b>1500 h</b>	<b>SP62A-06</b>	Minor Light Ions Measured by Akebono EXOS-D: <b>S Watanabe, E Sagawa, I Iwamoto, B A Whalen</b>	<b>1600 h</b>	<b>SP62B-09</b>	Magnetospheric Source Regions of Discrete Arcs Observed by the DMSP-F6 and -F7 Satellites: <b>K Shiokawa, H Fukunishi</b>
<b>1515 h</b>	<b>BREAK</b>		<b>1615 h</b>	<b>SP62B-10</b>	A Mesoscale Model for Auroral Particle Acceleration and Current System: <b>G A Dulk, R M Winglee, P B Dusenberry</b>

<b>1535 h</b>	<b>SP62A-08</b>	Thermal Electron Energy Distribution Associated With Field-Aligned Current in the Auroral Region: <b>T Abe, T Okuzawa, K I Oyama, H Fukunishi, R Fujii</b>	<b>V62A</b>	<b>SFK: Large Hall</b>	Sat 1330 h
<b>1550 h</b>	<b>SP62A-09</b>	<i>INVITED</i> Features of Polar-Cap Aurora Observed by the Akebono VUV-Imager: <b>E Kaneda, T Yamamoto, T Oguti</b>	<b>Geodynamics and Evolution of the Earth IV (joint with P,S,T)</b>		
<b>1620 h</b>	<b>SP62A-10</b>	Storm-Time Aurora as Observed With Akebono VUV Imager: <b>T Yamamoto, E Kaneda, K Hayashi, R Fugii, A Kadokura, M Ejiri, K Makita, T Oguti</b>	<b>Presiding:</b>	<b>S Maruyama</b> , Univ of Tokyo; <b>B F Windley</b> , Univ of Leicester	
<b>1330 h</b>	<b>V62A-01</b>	<i>INVITED</i> Crustal Growth and Mantle Dynamics: <b>G Schubert</b>	<b>1330 h</b>	<b>V62A-01</b>	<i>INVITED</i> Crustal Growth and Mantle Dynamics: <b>G Schubert</b>
<b>1355 h</b>	<b>V62A-02</b>	<i>INVITED</i> Pattern Transition of Continents on Early Earth: <b>M Toriumi, A Taira, T Matsui</b>	<b>1355 h</b>	<b>V62A-02</b>	<i>INVITED</i> Pattern Transition of Continents on Early Earth: <b>M Toriumi, A Taira, T Matsui</b>
<b>1410 h</b>	<b>V62A-03</b>	Evolution of the Atmosphere on the Earth and Thermal History of the Mantle: <b>E Tajika, T Matsui</b>	<b>1410 h</b>	<b>V62A-03</b>	Evolution of the Atmosphere on the Earth and Thermal History of the Mantle: <b>E Tajika, T Matsui</b>
<b>1425 h</b>	<b>V62A-04</b>	<i>INVITED</i> Photoautotrophy and Early Biological Modulation of the Terrestrial Carbon Cycle: <b>M Schidlowski</b>	<b>1425 h</b>	<b>V62A-04</b>	<i>INVITED</i> Photoautotrophy and Early Biological Modulation of the Terrestrial Carbon Cycle: <b>M Schidlowski</b>
<b>1450 h</b>	<b>V62A-05</b>	Anomalous Mineralogical Data of Shocked Quartz Grains From Colorado K-T Boundary: <b>Y Miura</b>	<b>1450 h</b>	<b>V62A-05</b>	Anomalous Mineralogical Data of Shocked Quartz Grains From Colorado K-T Boundary: <b>Y Miura</b>

<b>SP62B</b>	<b>KNK: Fuyo A</b>	Sat 1330 h	<b>1520 h</b>	<b>BREAK</b>	
<b>Substorms and Magnetosphere-Ionosphere Coupling Systems II</b>			<b>1535 h</b>	<b>V62A-08</b>	<i>INVITED</i> Subduction Zone Metamorphism Since the Archean: <b>S Maruyama</b>
<b>Presiding:</b>	<b>C R Clauer</b> , Stanford Univ; <b>A Nishida</b> , Inst. of Space and Astronaut. Sci.		<b>1555 h</b>	<b>V62A-09</b>	Fluid Behavior in Archaean Granulite Facies Terrain of the Limpopo Belt: <b>T Miyano, T Tsunogae, D D van Reenen</b>
<b>1330 h</b>	<b>SP62B-01</b>	<i>INVITED</i> Studies of Earth's Magnetotail by the GEOTAIL Program: <b>A Nishida</b>	<b>1610 h</b>	<b>V62A-10</b>	The Tectosphere and Crustal Growth From Sedimentation: <b>D Abbott</b>
<b>1355 h</b>	<b>SP62B-02</b>	<i>INVITED</i> Tail Dynamics Associated With Substorms: <b>E W Hones, T E Cayton, R Elphinstone, A B Galvin, F M Ipavich, N C Heinemann, G K Parks, R L McPherron</b>	<b>1630 h</b>	<b>V62A-11</b>	<i>INVITED</i> Origin and Implications of Mantle Root Beneath the Canadian Shield: <b>P F Hoffman</b>
<b>1420 h</b>	<b>SP62B-03</b>	Mechanism of Multiple-Onset Substorm as Inferred From Disconnection of the Cometary Magnetospheres: <b>T Saito, T Oki, Y Kozuka</b>	<b>1650 h</b>	<b>V62A-12</b>	<i>INVITED</i> Anorogenic Magmatism Associated With Proterozoic Orogenic Belts: And Modern Analogues in the Wilson Cycle: <b>B F Windley</b>
<b>1435 h</b>	<b>SP62B-04</b>	Predicting the Flux of Relativistic Electrons at Synchronous Orbit From Solar Wind and Substorm Activity Indices: <b>R L McPherron, D N Baker</b>			

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